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Learn  veryWare

Math 6 Unit 1



Workbook

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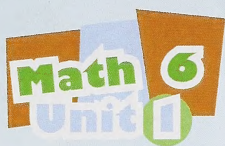


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Math 6 Learn EveryWare – Unit 1 Workbook
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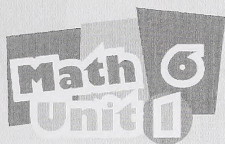
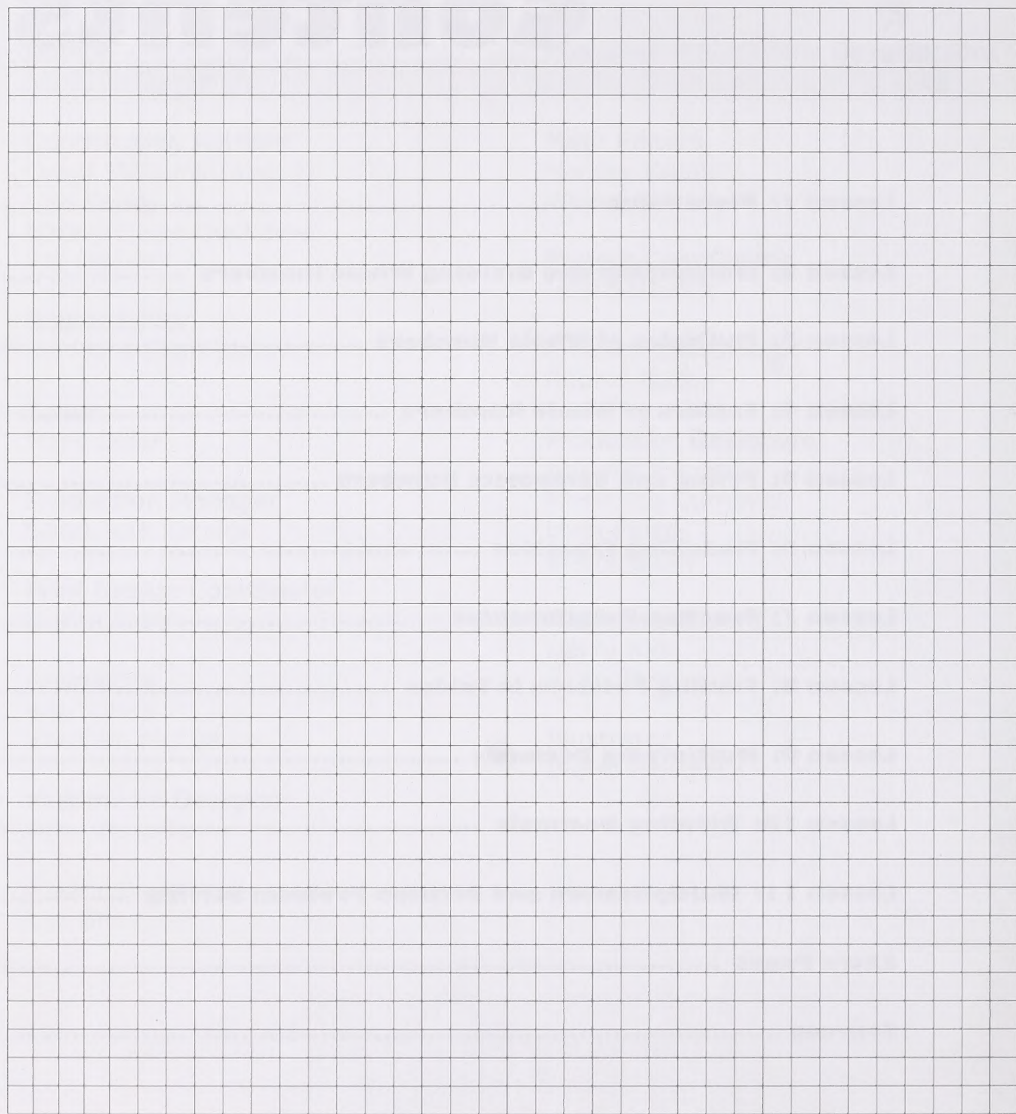


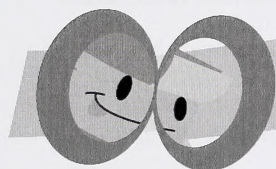
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Lesson 1

Place Value



Let's Explore

Exploration 1: Making Numbers

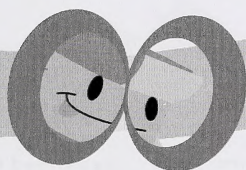
Materials: 8 Index Cards, Marker, Pencil

1. Write the following digits and decimal on one index card each.
Be sure to use your marker and make the numbers very large.

1	2	3	4	.	5	6	7
---	---	---	---	---	---	---	---

2. What is the largest number that you can make using these cards if you must have three digits after the decimal?
3. Write your large number in standard form.
4. Write your large number in expanded form.

5. Write your large number in words.
6. What is the smallest number that you can make using these cards if you must have only three digits after the decimal?
7. Write your small number in standard form.
8. Write your small number in expanded form.
9. Write your small number in words.
10. What is the largest number you can make if you can place the decimal anywhere you want? Write the number in standard form and in words.
11. What is the smallest number you can make if you can place the decimal anywhere you want? Write the number in standard form and in words.



Let's Explore

Exploration 2: Searching for Numbers

Materials: Newspapers, Internet, Magazines, Science Textbooks, Pencil

1. Find five numbers in your resources that are greater than one million.
2. Record the source, what the number describes, and then write the number in standard form and expanded form in the table.

Source	Description	Standard Form	Expanded Form

3. Find five decimal numbers that are smaller than one.

Lesson 1: Place Value

4. Record the source, what the number describes, and then write the number in standard form and expanded form in the table.

Source	Description	Standard Form	Expanded Form

5. Reflect: What resources might you use to find large numbers?
6. Reflect: What resources might you use to find small numbers?

Lesson 1: Place Value



Let's Practice

For 1 – 6: Write the value of the underlined digit.

1. 4.315 36

2. 26.780 95

3. 498 320 547

4. 7 823 745.289

5. 234 512.329

6. 4.852 854

For 7 – 10: Write the number in standard form.

7. 300 000 000 + 20 000 000 + 8 000 000 + 40 000 + 500 + 30 + 0.4 + 0.06

8. 7 000 000 000 + 40 000 000 + 2 000 000 + 500 000 + 3 000 + 100 + 40 + 6

9. seven billion, two hundred fifty-eight million, five hundred thirty-four thousand

10. one hundred seventy-five and forty-three ten thousandths

11. The latest movie released grossed sixty-five million dollars.
Write the number in standard form.

12. Cameron wrote "twelve thousand, three hundred and eight and five tenths" for the number 12 308.5. Explain what is wrong with his answer.

13. The diameter of the Earth is 12 757 km. Write the number in words and in expanded form.

14. The area of the Province of Alberta is about 661 848 km². What is the value of 1 in this number?

For 15 – 16: Write the number that is 100 000 more than the given number.

15. 450 238 000.09

16. 21 780 654.87

For 17 – 18: Write the number that is 10 000 less than the given number.

17. 450 238 000.09

18. 21 780 654.87

Lesson 1: Place Value

For 19 – 22: Use magazines, the Internet, encyclopedias, or other resources to find numbers. Write each number in standard form, and identify what it represents.

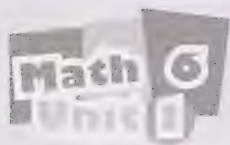
19. Find a number that represents a real-world object and is more than one hundred million.
20. Find a number that represents a real-world object that is less than one.
21. Find a number that represents a real-world object and has a value of less than one thousandth.
22. Find a number that represents a real-world object and has a value of more than one billion.



Mixed Review

For 1 – 5: Multiply.

1. 3×12
2. 4×9



Lesson 1: Place Value

3. 5×15

4. 6×8

5. 7×10

Lesson 2

Multiplying and Dividing Whole Numbers



Let's Explore

Exploration 1: Making Models

Materials: Dry Beans (or Counters), Pencil

For 1- 4: Make a model using your materials. Sketch your model and write the problem and its solution.

1. Alyssa has 24 dry beans, Nina has 31 dry beans and Zach has 18 dry beans. How many dry beans do they have all together?
2. Cameron has 68 dry beans. He wants to give the same number to each of his 3 friends and himself. How many will each of them get?

3. Lian has 45 dry beans. She gives Daksha 26 dry beans.
How many does Lian have left?

4. Nina has 18 dry beans. Cameron says he has five times as many dry beans
as Nina. How many dry beans does Cameron have?

**Let's Practice**

For 1 - 8: Write the number sentence you used and solve the problem.

1. There are 480 students and each of them has 12 pencils.
How many pencils do they have all together?

2. A band made \$1 720 selling tickets to their concert for \$8 each.
How many tickets did they sell?

Lesson 2: Multiplying and Dividing Whole Numbers

3. The Mica dam in British Columbia is 242 metres tall. The world's tallest dam is the Nurek dam in Vakhsh, Tajikistan and it is 300 metres tall. How much taller is the Nurek dam?

4. Cameron made \$42 on Monday, \$28 on Tuesday, \$37 on Thursday, and \$55 on Saturday working on his uncle's farm. How much did he make for the week?

5. The population of Lake Whisper is 9 285 in the summer. In the winter the population is 3 487. How much larger is the summer population?

6. The drama club sold 485 tickets to the school play. The tickets cost \$12 each. How much money did they make?

Lesson 2: Multiplying and Dividing Whole Numbers

7. Mrs. Jones bought 185 rulers for her 5 classes. How many rulers does she have for each class?

8. Lian is helping to plant 336 trees. She plants 8 in each row. How many rows of trees is she planting?

For 9 - 14: Solve the problem using a calculator and the table of data.



9. Nina's family has a reunion in Ottawa they plan to attend. They will drive from Calgary to Ottawa. How many kilometres will they drive?
10. If Nina's family decides to continue on to Quebec City from Ottawa, how many more kilometres will they have to drive?
11. What is twelve times the distance from Winnipeg to Ottawa?



Lesson 2: Multiplying and Dividing Whole Numbers

12. What is the distance from Vancouver to Montreal?

13. On another trip, Nina's family drives an average of 80 kilometres per hour from Vancouver to Calgary. How many hours did it take them to get there?

14. The family drives 80 kilometres per hour for most of the last 24 hours of the trip. How many kilometres did they travel?

15. Reflect: Write your own story problem using small numbers, and use a calculator to solve the problem.

Lesson 2: Multiplying and Dividing Whole Numbers



Mixed Review

For 1 – 5: Add.

1. $1.23 + 2.58$

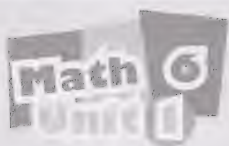
2. $4.57 + 1.06$

3. $12.34 + 2.87$

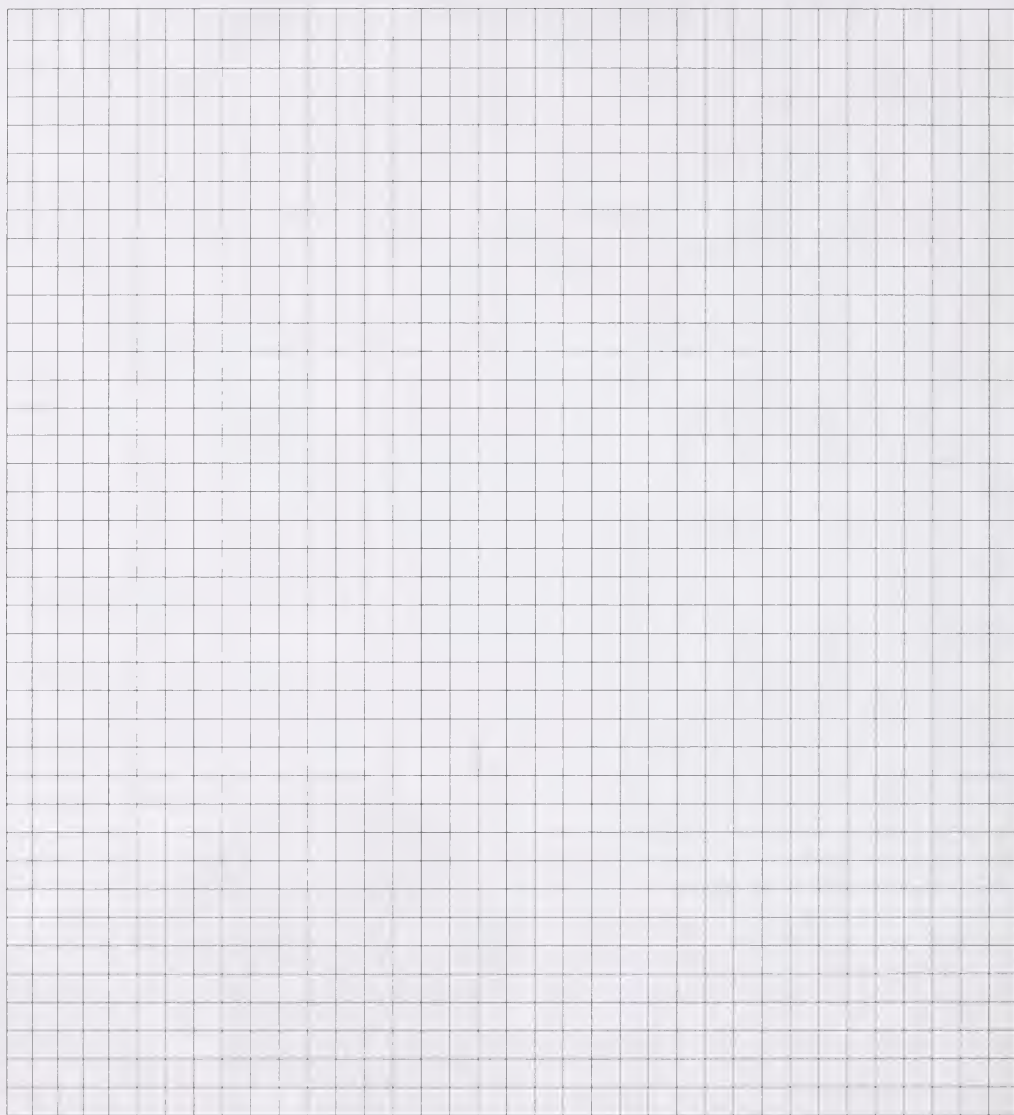
4. $25.3 + 87.9$

5. $101.25 + 8.3$



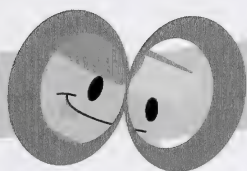


Lesson 2: Multiplying and Dividing Whole Numbers



Lesson 3

Multiples of Whole Numbers



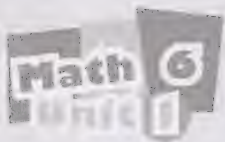
Let's Explore

Exploration 1: Multiples of 7

Materials: Pencil

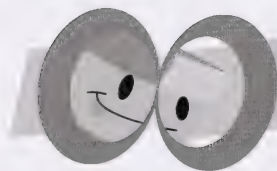
1. Colour the 7 row or the 7 column in the multiplication table.

1	2	3	4	5	6	7	8	9	10	11	12
2	4	6	8	10	12	14	16	18	20	22	24
3	6	9	12	15	18	21	24	27	30	33	36
4	8	12	16	20	24	28	32	36	40	44	48
5	10	15	20	25	30	35	40	45	50	55	60
6	12	18	24	30	36	42	48	54	60	66	72
7	14	21	28	35	42	49	56	63	70	77	84
8	16	24	32	40	48	56	64	72	80	88	96
9	18	27	36	45	54	63	72	81	90	99	108
10	20	30	40	50	60	70	80	90	100	110	120
11	22	33	44	55	66	77	88	99	110	121	132
12	24	36	48	60	72	84	96	108	120	132	144



Lesson 3: Multiples of Whole Numbers

2. List the first twelve multiples of 7 using this table.
3. Extend your list to include the next three multiples of 7.
4. Describe the method you used to find the next three multiples of 7.



Let's Explore

Exploration 2: Multiples in Arrays

Materials: Counters (Small Candies or Dry Beans), Pencil

1. Make an array for 3×4 using Counters.
2. Use your Counters to create the array for each multiple of 4 up to the twelfth multiple of 4.
3. Did you add rows or columns to your original array?

Lesson 3: Multiples of Whole Numbers

4. How many Counters did you add each time?

5. Complete this statement: To get the 20th multiple of 4 I would use _____ rows of _____ Counters.

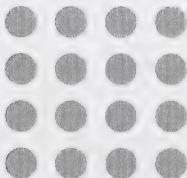
6. Make an array for 2×6 using Counters. Draw a picture of your array.

7. Describe how you would change the array to create an array for a product of 36. Draw a picture of your new array.

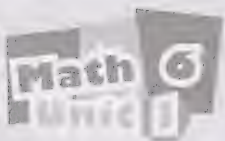
8. Reflect: How many arrays can be made for the multiples of 8, out of 56 Counters?

A square number is a number that is formed by an array that makes a square.
For example:

4 rows of 4: $4 \times 4 = 16$



The square number represented by this array is 16.



Lesson 3: Multiples of Whole Numbers

9. What is a square number that would have a row of 7 Counters?

10. The following array does not represent a square number. Recreate the image on your desk using Counters. Add Counters to the array to create a square number. What number did you create?



11. Rearrange the Counters and create one more square number. You can use fewer Counters or more Counters.
12. What is the next square number in this pattern?
4, 9, 16, 25, 36, _____
13. Reflect: Does any number have more than one square number as a multiple?

**Let's Practice**

For 1 – 6: List the multiples described.

1. the first six multiples of 5: _____
2. the first eight multiples of 9: _____
3. the first ten multiples of 6: _____
4. the first nine multiples of 4: _____
5. the first twelve multiples of 8: _____

6. Is 64 a square number? Explain how you know.

Lesson 3: Multiples of Whole Numbers

For 7 – 9: What number am I?

1	2	3	4	5	6	7	8	9	10	11	12
2	4	6	8	10	12	14	16	18	20	22	24
3	6	9	12	15	18	21	24	27	30	33	36
4	8	12	16	20	24	28	32	36	40	44	48
5	10	15	20	25	30	35	40	45	50	55	60
6	12	18	24	30	36	42	48	54	60	66	72
7	14	21	28	35	42	49	56	63	70	77	84
8	16	24	32	40	48	56	64	72	80	88	96
9	18	27	36	45	54	63	72	81	90	99	108
10	20	30	40	50	60	70	80	90	100	110	120
11	22	33	44	55	66	77	88	99	110	121	132
12	24	36	48	60	72	84	96	108	120	132	144

7. One of my multiples is 24. I am a multiple of six numbers in the 12 x 12 multiplication chart.

8. When you add my digits you will get 9. If you reverse my digits I am still a multiple of the same number. I am contained in the 12 x 12 multiplication chart.

9. I am an odd two-digit number. The sum of my digits is a two-digit number. I am a square number.

Lesson 3: Multiples of Whole Numbers

For 10 – 14: Is the statement True or False? Give an example to support your answer.

10. Any multiple of 5 is also a multiple of 2.
11. Any multiple of 10 is also a multiple of 5.
12. Any multiple of 6 is also a multiple of 3.
13. 24 is a multiple of 5.
14. All square numbers are odd.
15. Write two true statements of the form: "Any multiple of _____ is also a multiple of _____."
16. Cameron says that the product of 9 and any number is twice the product of 3 and that number. Give an example to show that his statement is false.

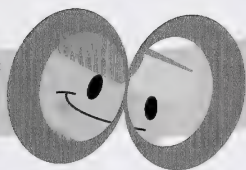
Mixed
Review

For 1 – 5: Complete the pattern.

1. 4, 8, 12, _____, 20, 24
2. 3.5, 4, 4.5, 5, _____, 6, 6.5
3. 12, 15, 19, 24, 30, 37, _____
4. 2, 8, 32, _____, 512, 2 048
5. 1, 2, 4, 8, 16, 32, _____, 128

Lesson 4

Factors of Whole Numbers



Let's Explore

Exploration 1: Arrays to Factors

Materials: Grid Paper from the back of this Unit in your Workbook (you will need two pieces), 5 Pencil Crayons, Pencil

For 1 – 5: Use a different coloured pencil crayon for each.

1. Make all possible arrays of 36 squares on your grid paper.
List the factors of 36.
2. Make all possible arrays of 21 squares on your grid paper.
List the factors of 21.
3. Make all possible arrays of 32 squares on your grid paper.
List the factors of 32.
4. Make all possible arrays of 17 squares on your grid paper.
List the factors of 17.

Lesson 4: Factors of Whole Numbers

5. Make all possible arrays of 29 squares on your grid paper.
List the factors of 29.

The **proper factors** of a number are all of the factors less than the number but greater than 1. The proper factors of 18 are: 2, 3, 6, 9.

6. How many proper factors does the number 29 have?
7. Reflect: Compare and contrast the factors of 29 to the factors of 32?
8. Reflect: How many numbers from 1 to 20 have no proper factors?
List them.



Let's Practice

1. Underline the product in this equation: $4 \times 5 = 20$
2. Underline the factors in this equation: $2 \times 8 = 16$

Lesson 4: Factors of Whole Numbers

3. Write three multiplication sentences and identify the factors of each sentence.

For 4 – 15: Find the factors of each of the following.

4. 46

5. 124

6. 96

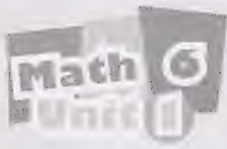
7. 65

8. 42

9. 78

10. 108

11. 57



Lesson 4: Factors of Whole Numbers

12. 225

13. 200

14. 180

15. 140

16. Not including myself and 1, my factors are 2, 3, 4, 6, 8, 12, 16, 24, 32, and 48. What number am I?

17. Alyssa and her family have 72 awards for their sports' hobbies. She wants to display them in rows with an equal number of awards. How many different ways can Alyssa set up the rows?

Lesson 4: Factors of Whole Numbers

18. A perfect number is a number whose factors less than the number add up to the given number. The smallest perfect number is six:

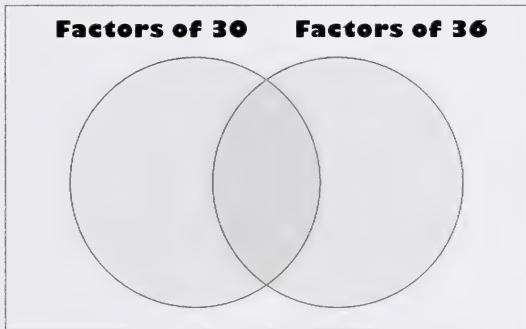
Factors of 6: 1, 2, 3, 6

Factors of 6 that are less than 6: 1, 2, 3

The sum of the factors of six: $1 + 2 + 3 = 6$

What is the next perfect number?

19. Complete the Venn diagram with all possible factors of each number.



20. What is the largest factor of both 30 and 36?

21. Reflect: Describe the method of finding factors that you use most often. Why do you like this method?

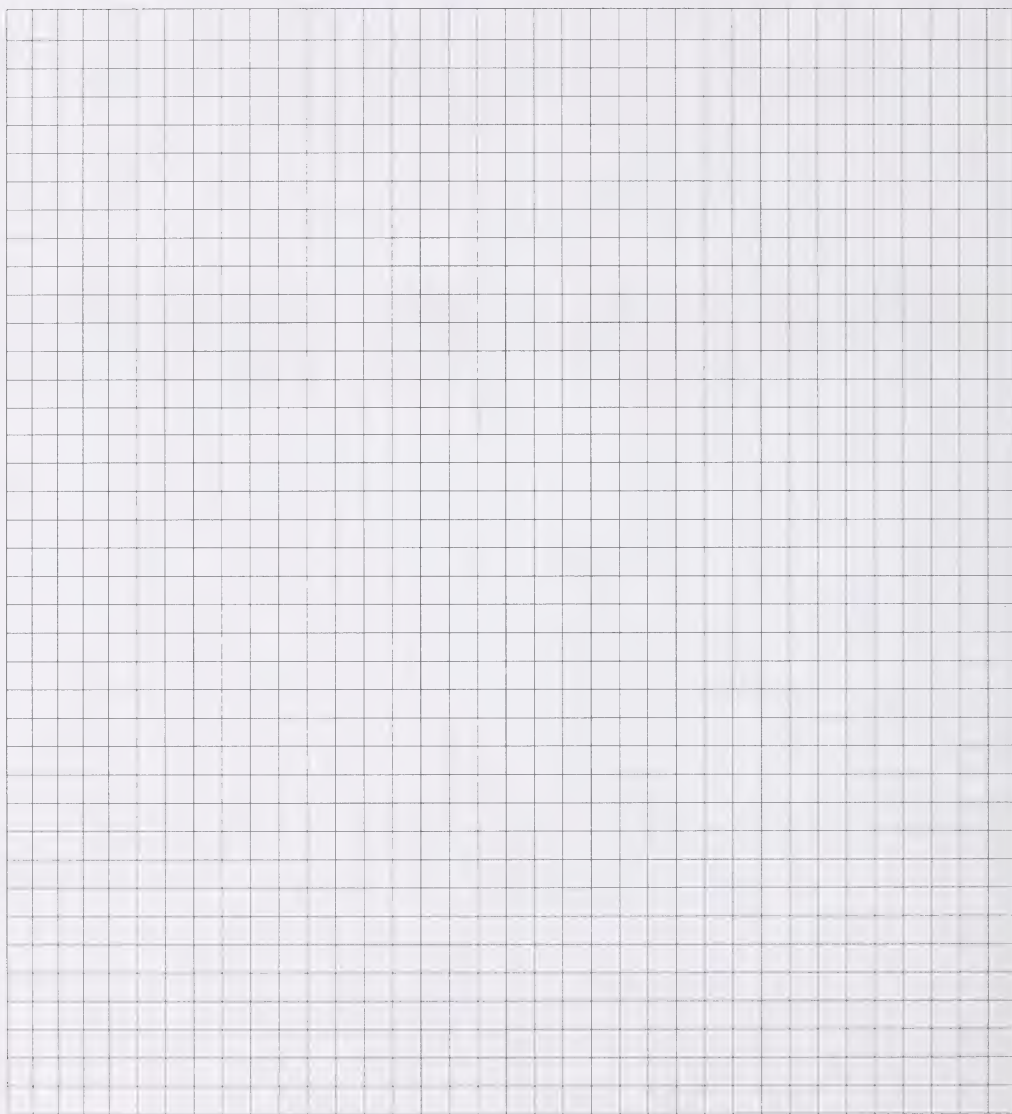
**Mixed
Review**

1. Draw a rectangle.

2. Draw a square.

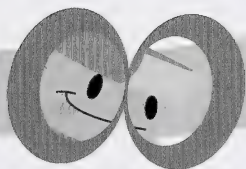


3. Draw a trapezoid.
4. Draw a pair of parallel line segments.
5. Draw a rhombus.



Lesson 5

Prime and Composite Numbers



Let's Explore

Exploration 1: Can You Find the Primes?

Materials: A Pencil Crayon, Pencil

For 1 – 5: Use the following Number Chart.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

1. Colour the 1 and circle the first four prime numbers: 2, 3, 5, 7
2. Colour the multiples of 2 but do not colour the 2.

Lesson 5: Prime and Composite Numbers

3. Colour the multiples of 3 but do not colour the 3.
4. Colour the multiples of 5 but do not colour the 5.
5. Colour the multiples of 7 but do not colour the 7.
6. List the numbers that are circled and the numbers that are not coloured, in order.
7. These are the prime numbers up to 100. Check each number to be sure that it has no factors other than 1 and itself.
8. Reflect: Why do you think you did not have to colour multiples of 6?
9. Reflect: Why do you think you did not have to colour multiples of 11?
10. What is the smallest prime number greater than 100? Describe how you found that number.



For 1 - 18: Write all of the factors of each number. Next, identify the number as prime or composite.

1. 37

2. 28

3. 43

4. 65

Lesson 5: Prime and Composite Numbers

5. 72

6. 59

7. 92

8. 48

9. 31

10. 89

11. 27

12. 94

13. 103

14. 102

15. 88

16. 57

17. 62

18. 44

For 19 – 24: What is the prime factorization of each number?

19. 54

20. 84

21. 65

22. 36

23. 42

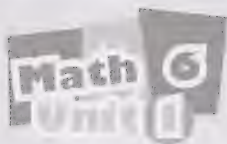
24. 30

For 25 – 27: What number has the given prime factorization?

25. $3 \times 3 \times 5 \times 7$

26. $2 \times 5 \times 5 \times 11$

27. $5 \times 7 \times 13$



Lesson 5: Prime and Composite Numbers

28. The first 10 numbers of the Fibonacci sequence are 1, 1, 2, 3, 5, 8, 13, 21, 34, and 55. Are any of these numbers prime? List them.
29. I am a prime number less than 30. My ones digit and tens digit have a sum of 10. My tens digit is less than my ones digit. What number am I?
30. What is the only even prime number?
31. Use the Internet or an Encyclopaedia to find the number of petals on several different types of flowers. Identify at least three flowers that have a number of petals that belongs to the Fibonacci sequence. Do any of your flowers have a prime number of petals?
32. Reflect: Why aren't 1 and 0 prime numbers?
33. Reflect: 2 and 3 are consecutive prime numbers. Can there be another pair of consecutive prime numbers? Why or why not?

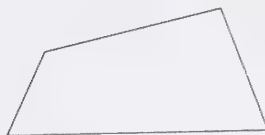
**Mixed
Review**

For 1 – 4: Is the figure a quadrilateral? If it has a special name, write it on the line.

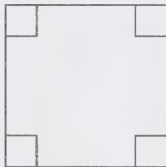
1. _____



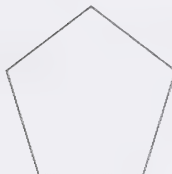
2. _____



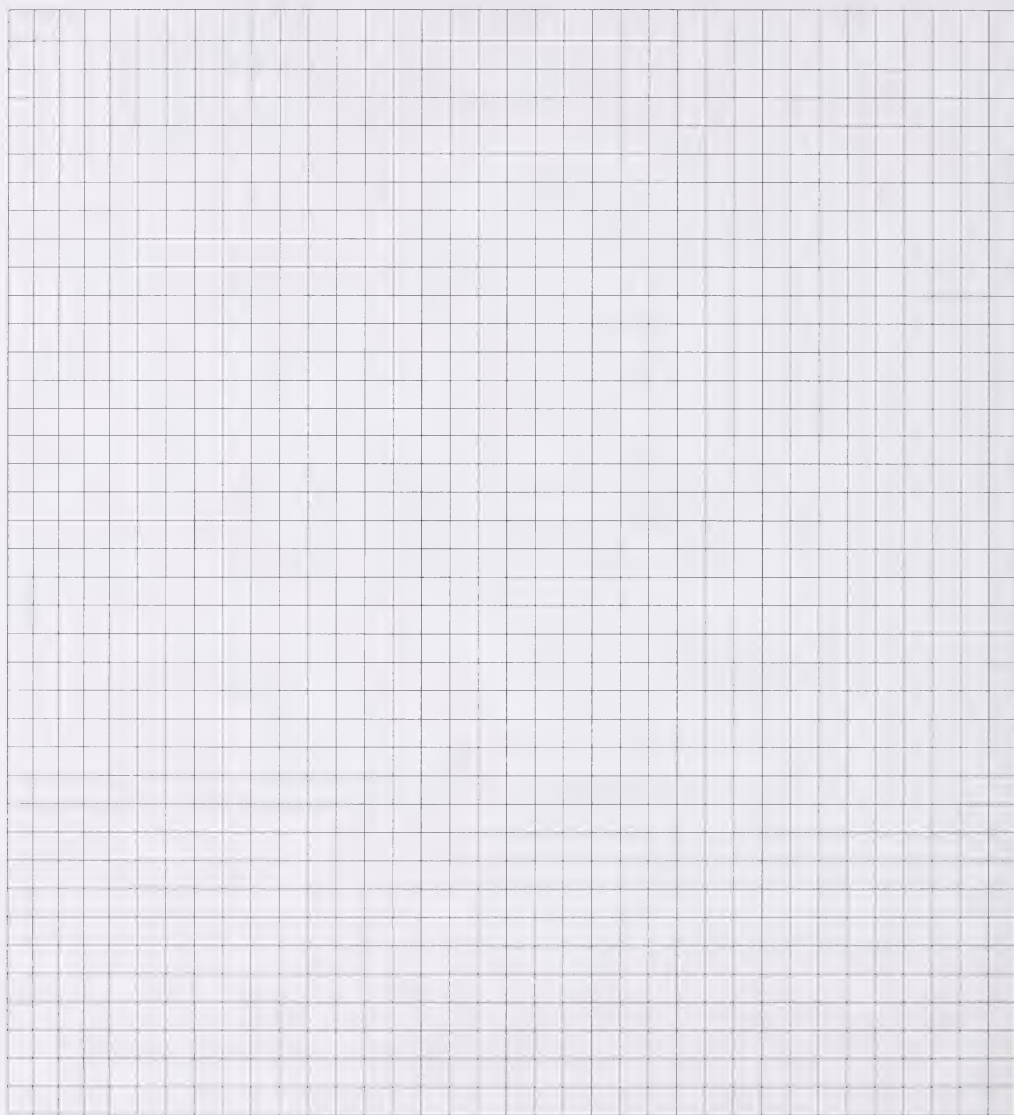
3. _____



4. _____



5. Draw and name a quadrilateral with both pairs of opposite sides parallel.



Lesson 6

Modelling Fractions

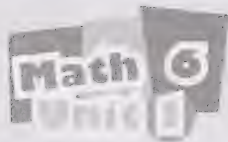


Let's Explore

Exploration 1: Pattern Block Fractions

Materials: Pattern Blocks from the back of this Unit in your Workbook, Pencil, Scissors,

1. Cut out the Pattern Blocks.
2. Take six triangles and manipulate them to cover 1 hexagon. Use more of the triangles and hexagons to create a model for the improper fraction $\frac{14}{6}$.
3. Write a mixed number for $\frac{14}{6}$.
4. Take three triangles and manipulate them to cover 1 trapezoid. Use more of the triangles and trapezoids to create a model for the mixed number $2\frac{1}{3}$.
5. Write an improper fraction for $2\frac{1}{3}$.
6. Create your own model for an improper fraction. Write the improper fraction and the mixed number for your model.



Lesson 6: Modelling Fractions

7. Create your own model for a mixed number. Write the improper fraction and the mixed number for your model.

8. Daksha has $4\frac{1}{3}$ granola bars. Create a model for Daksha's granola bars.

9. Using these pattern blocks, what are some other fractions you can model that are greater than 1? Sketch a model of your fractions.

10. Reflect: What are some improper fractions you cannot model using these pattern blocks?

11. Reflect: What are some mixed numbers you cannot model using these pattern blocks?



Let's Practice

For 1 – 8: Write the improper fraction and the mixed number for each picture.

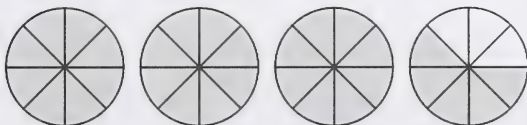
1.



2.



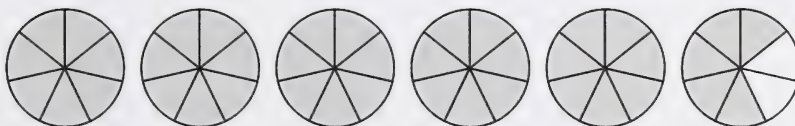
3.



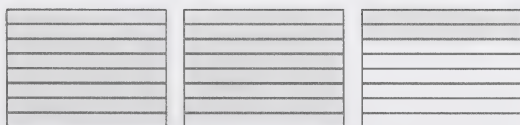
4.



5.



6.



7.



Lesson 6: Modelling Fractions

8.



For 9 – 10: Create a model for each of the following using Counters. Draw your model and name the improper fraction for the model.

9. $2\frac{3}{5}$

10. $4\frac{2}{7}$

For 11 – 12: Create a model for each of the following using Counters. Draw your model and name the mixed number for the model.

11. $\frac{13}{6}$

12. $\frac{18}{4}$

13. Create a model for the following using Pattern Blocks. Draw your model and name the mixed number for the model.

$\frac{14}{3}$

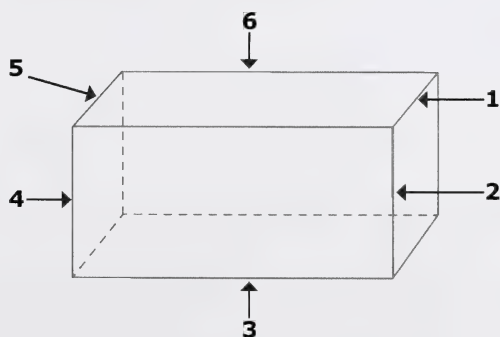
Lesson 6: Modelling Fractions

14. Reflect: What do you notice about the relationship between a mixed number and the improper fraction for the same model?

15. Problem Solving: Lian brought 3 oranges to lunch. Each orange was cut into 8 pieces. Each person ate 2 pieces, and there were no pieces left over. How many people were at lunch? Draw a model to help you find the answer.

Mixed Review

For 1 – 5: Use the given figure to answer each question.

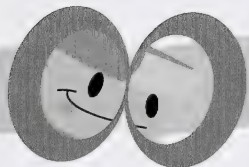


1. The parts that are labelled are called _____ of the prism.

2. Name the labelled edge that is parallel to number 5.
3. Name the labelled edges that are horizontal.
4. Name the labelled edges that are vertical.
5. Name a pair of labelled edges that are perpendicular.

Lesson 7

Fraction Relationships

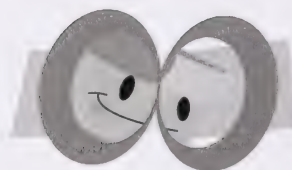


Let's Explore

Exploration 1: Fractional Number Lines

Materials: Page of Blank Number Lines from the back of this Unit in your Workbook, Pencil

1. Create a number line that starts at 4 and has five parts between each whole number. Label the marks with the correct mixed numbers.
2. Place a point at $4\frac{2}{5}$ and label it A.
3. Place a point at $4\frac{4}{5}$ and label it B.
4. Place a point at $5\frac{1}{5}$ and label it C.
5. Create a number line that starts with 3 and has six parts between each whole number. Label the marks with the correct improper fractions.
6. Place a point at $\frac{21}{6}$ and label it A.
7. Place a point at $\frac{26}{6}$ and label it B.
8. Place a point at $\frac{29}{6}$ and label it C.
9. Create a number line that is able to contain the following points: A $2\frac{1}{4}$, B $3\frac{2}{4}$, and C $4\frac{3}{4}$. Label the line with those points.
10. Create a number line that is able to contain the following points: A $\frac{25}{7}$, B $\frac{30}{7}$, and C $\frac{34}{7}$. Label the line with those points.



Let's Explore

Exploration 2: Fraction Circles

Materials: Fraction Circles from the back of this Unit in your Workbook, Pencil, Scissors, Small Plastic Bag

1. Cut out all Fraction Circles and their parts. After completing this Exploration, store the Fraction Circles in the small plastic bag. You will use them again later.
2. Create a model for each of the following:
 - a. $\frac{12}{5}$
 - b. $2\frac{2}{5}$
3. What do the models have in common? Why?
4. Write an improper fraction that you can model using the circles that have 7 pieces. Model that fraction and draw your model.
5. Write a mixed number that you can model using the circles that have 8 pieces. Model that fraction and draw your model.

Lesson 7: Fraction Relationships

6. Cameron used 4 of the circles that have 4 parts each to model $\frac{17}{5}$. What was his mistake?

7. Lian needs to model the fraction $4\frac{1}{6}$. Describe the parts she needs to use to model this fraction.

8. Reflect: Write three improper fractions that you cannot model using these circles and their parts.

9. Reflect: Write three mixed numbers that you cannot model using these circles and their parts.

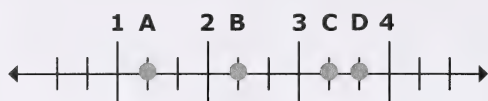


Lesson 7: Fraction Relationships



Let's Practice

For 1 - 4: Write an improper fraction and a mixed number for each letter.



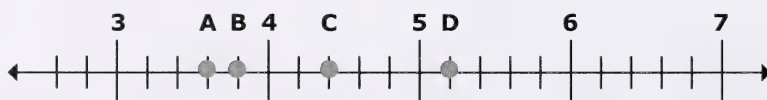
1. A

2. B

3. C

4. D

For 5 - 8: Write an improper fraction and a mixed number for each letter.



5. A

6. B

7. C

8. D

For 9 - 10: Find the missing values in each table.

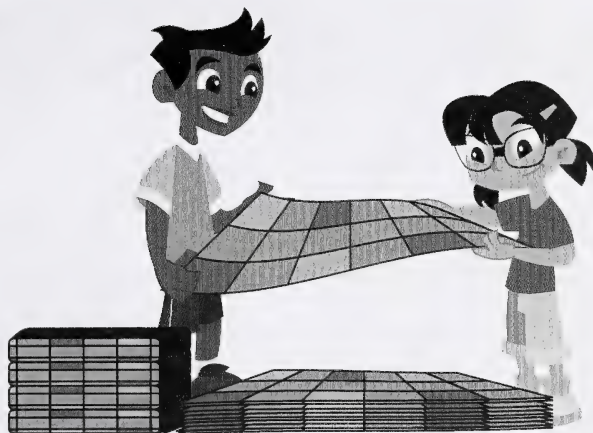
9. Daksha and Lian are helping to make quilts for the homeless. The table shows the number of quilts completed for the given week.

Number of Weeks	5	6	7	8	9	10	11	12
Number of Quilts	$1\frac{1}{4}$		$1\frac{3}{4}$			$2\frac{2}{4}$	$2\frac{3}{4}$	3

Lesson 7: Fraction Relationships

10.

x	y
2	
3	$\frac{9}{5}$
4	$\frac{12}{5}$
5	$\frac{15}{5}$
6	
7	
8	$\frac{24}{5}$
9	



For 11 – 12: Solve using patterns.

11. Cameron is cutting apples for a party at his home tonight. He adds the apple pieces to a bowl. Find the number of apples that are in the bowl after his 12th addition.

Number of Additions	1	2	3	4	5	6	7	8	9
Number of Whole Apples	$\frac{3}{8}$	$\frac{6}{8}$	$\frac{9}{8}$	$\frac{12}{8}$	$\frac{15}{8}$	$\frac{18}{8}$	$\frac{21}{8}$	$\frac{24}{8}$	$\frac{27}{8}$

12. The university track team is practicing their distance running. The chart shows how far they run each day of training. If they keep this pattern for practice, how far will they be expected to run on day 10?

Day	1	2	3	4	5	6
Distance (km)	$4\frac{2}{10}$	$6\frac{3}{10}$	$8\frac{4}{10}$	$10\frac{5}{10}$	$12\frac{6}{10}$	$14\frac{7}{10}$

For 13 – 14: Write each improper fraction as a mixed number.

13. $\frac{28}{5}$

14. $\frac{84}{11}$

15. $\frac{65}{7}$

16. $\frac{49}{2}$

For 17 – 20: Write each mixed number as an improper fraction.

17. $6\frac{2}{11}$

18. $9\frac{4}{7}$

19. $12\frac{2}{9}$

20. $4\frac{3}{9}$

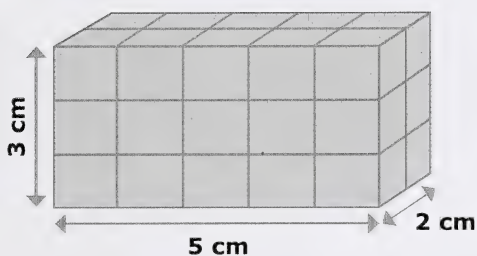
For 21 – 24: Find the missing numbers.

	Improper Fraction	Mixed Number
21.	$\frac{12}{7}$	
22.		$4\frac{2}{8}$
23.	$\frac{43}{4}$	
24.		$12\frac{1}{6}$

25. Reflect: If you were adding $3\frac{3}{5}$ and $5\frac{4}{5}$, would you want to work with mixed numbers or improper fractions? Why?

**Mixed
Review**

1. What is the volume?



2. Estimate the volume of a pack of note cards. Circle the best estimate.

A. 150 cm^3

B. 1 000 cm^3

C. 500 cm^3

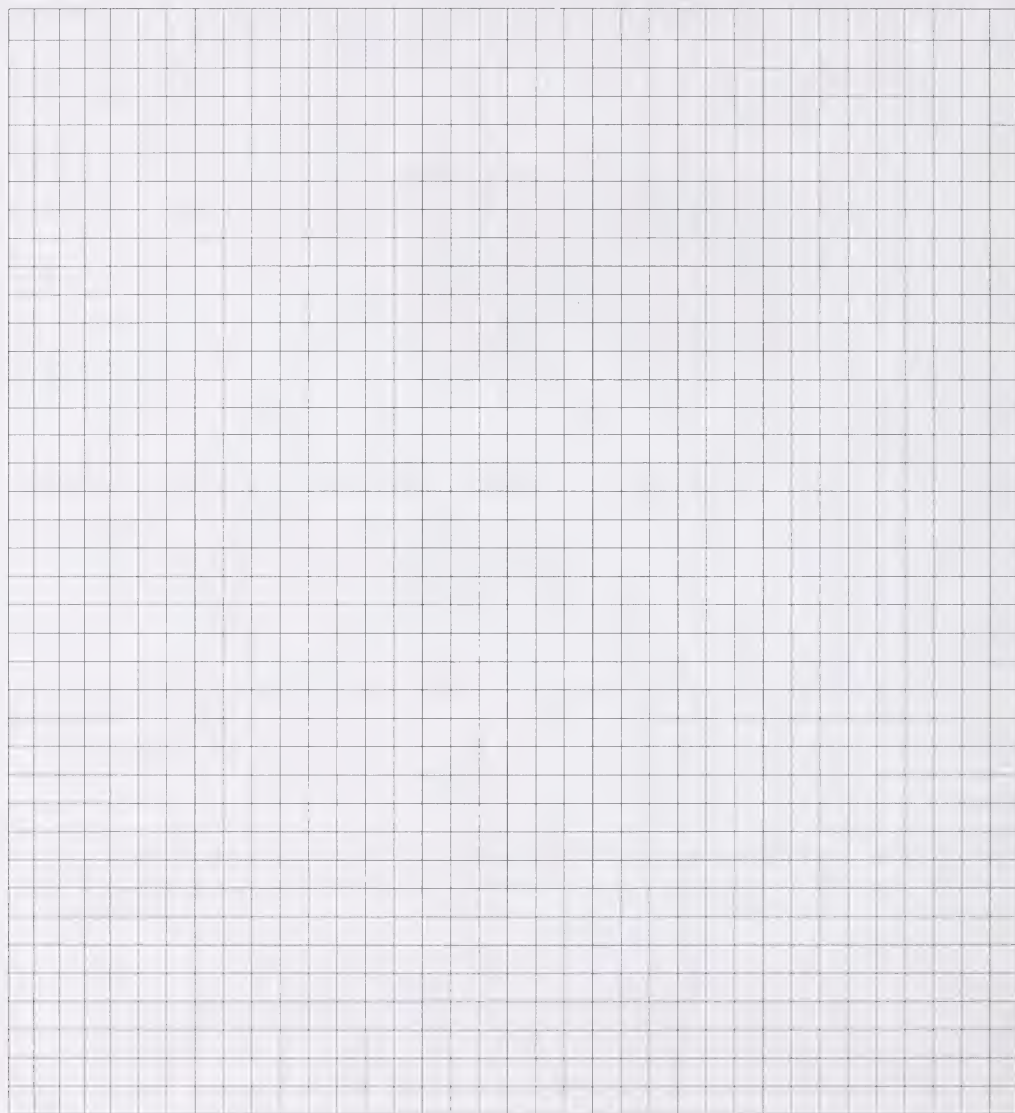
3. What units are commonly used for measuring capacity?

4. Estimate the capacity of a milk jug. Circle the best estimate.

A. 30 mL

B. 4 L

C. 400 kL



Lesson 8

Finding Patterns in Tables



Let's Explore

Exploration 1: Pattern Problems

Materials: Pencil

Find the pattern for each of the following. Identify the next three terms and describe the pattern.

1. M, T, W, T, F, S, S, M...
2. 3.4, 5.4, 10.8, 12.8, 25.6, 27.6, 55.2...
3. 1, 4, 9, 16, 25, 36, 49, 64...

4. 31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31...

5. 7, 171, 272, 373, 474, 575, 676...



Let's Explore

Exploration 2: Body Patterns

Materials: Pencil

- Complete the following table with the help of a friend. Add different body parts in the last 4 spaces.

Body Part	Number of People							
	1	2	3	4	5	6	7	8
Nose	1							
Eyes	2							
Toes on One Foot	5							
Toes on Two Feet	10							

Lesson 8: Finding Patterns in Tables

2. Describe the pattern of people to the number of toes on one foot.
3. Describe the pattern of people to the number of toes on two feet.
4. What are some other patterns you found?
5. Reflect: Name something around your home that would have a similar pattern?



Let's Practice

For 1 – 3: The following table shows the amount of money Zach earns at his job each week.

Week	1	2	3	4	5
Money Earned	\$8.50	\$10.00	\$11.50	?	?

1. Make a model of the pattern.

- Describe the pattern.
- How much money will Zach earn in Week 5 if the pattern continues?
- Reflect: Zach has a goal of earning at least \$20 in one week. Is it possible for him to reach his goal by Week 10? Explain your reasoning.

For 5 – 8: Use the following table.

x	1	2	3	4	5	6	7	8
y	8.4	10.5	?	?	16.8	?	21.0	?

5. Make a model of the pattern.

Lesson 8: Finding Patterns in Tables

6. Find the missing values in the table.

x	1	2	3	4	5	6	7	8
y	8.4	10.5			16.8		21.0	

7. Describe the pattern.

8. If the pattern continues at the same rate, what will **y** be when **x** is 12?

For 9 – 12: A university track team is training for a marathon. They are running the number of kilometres shown in the table each week to build stamina.

Week	1	2	3	4	5	6	7	8
Distance (in km)	?	6.8	8.1	9.4	?	?	?	14.6

9. Find the missing values in the table.

Week	1	2	3	4	5	6	7	8
Distance (in km)		6.8	8.1	9.4				14.6

10. Describe the pattern.

11. How far will they run in Week 12?
12. The marathon is 42.195 kilometres. How long will it be before they can run that distance, following this pattern?

For 13 – 15: Daksha’s parents are mixing mortar to lay tile. The table shows the number of cans of water they use to mix the grout to lay a given number of tiles.

Number of Tiles	20	40	60	80	100	120	140
Cans of Water	?	?	8	$10\frac{2}{3}$	$13\frac{1}{3}$?	?

13. Describe the pattern.
14. Find the missing values in the table.

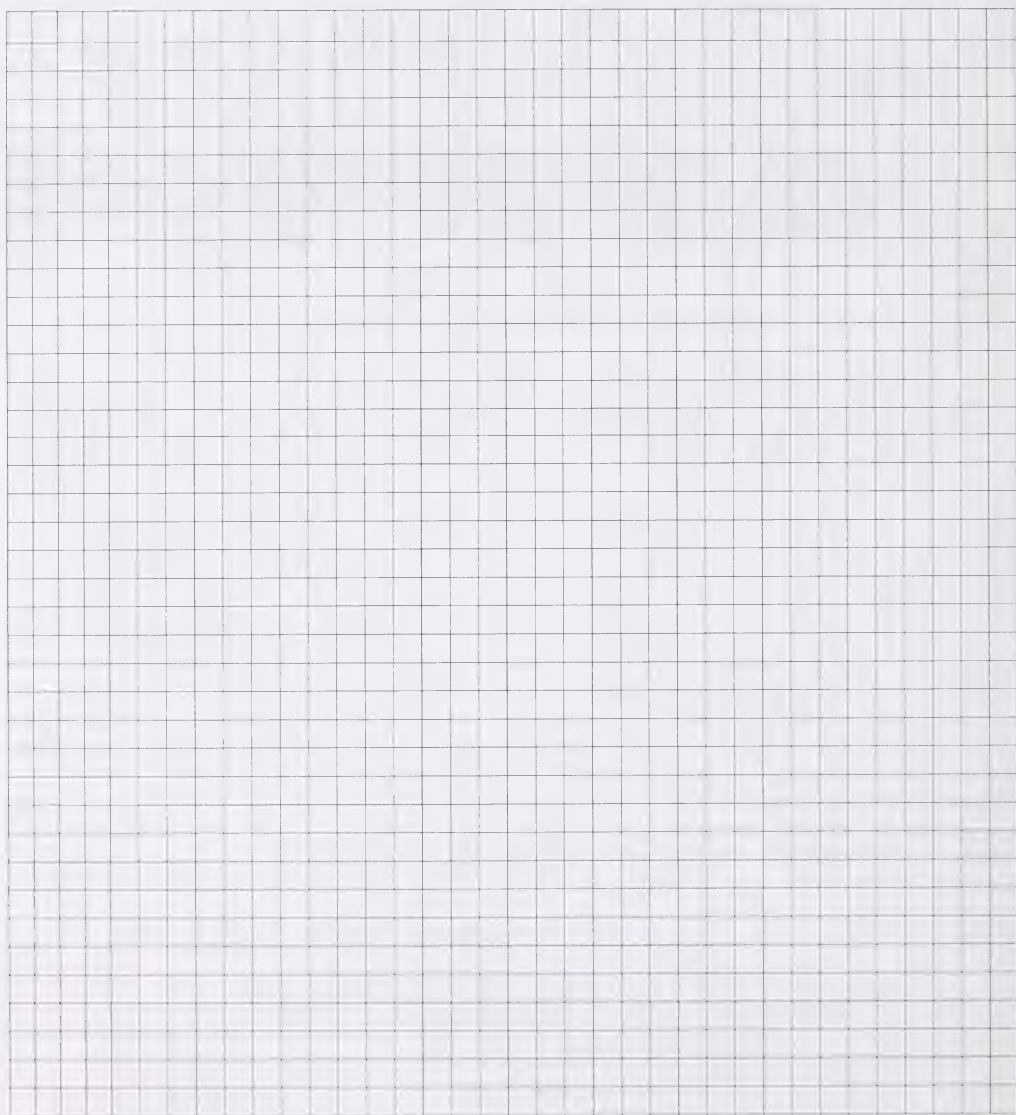
Number of Tiles	20	40	60	80	100	120	140
Cans of Water			8	$10\frac{2}{3}$	$13\frac{1}{3}$		

15. How many cans of water do they need for 180 tiles?



For 1 – 5: Find the area of the given rectangle.

1. length = 8 cm, width = 4 cm
2. length = 7 cm, width = 5 cm
3. length = 10 cm, width = 6 cm
4. length = 6 cm, width = 8 cm
5. Which rectangle has the largest area?



Lesson 9

Multiplying Decimals



Let's Explore

Exploration 1: Modelling Decimal Multiplication

Materials: Grid Paper from the back of this Unit in your Workbook (2 pages), Pencil

For 1 – 3: Draw your models on Grid Paper.

1. Make a model of 1.8×2 and find the solution.
2. Make a model of 3.5×3 and find the solution.
3. Create your own multiplication sentence. Make a model of your sentence and solve.

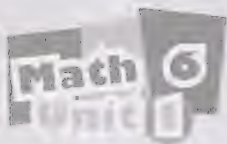


Let's Explore

Exploration 2: Choosing Jobs

Materials: Pencil

You need to choose a job. Job A pays \$8.58 per hour and Job B pays \$11.32 per hour.



Lesson 9: Multiplying Decimals

1. Reflect: Is it always better to take a higher paying job? Why or why not?

2. Would you choose Job A or Job B?

3. Why did you choose Job ____?

4. Would you choose Job A for 8 hours or Job B for 8 hours?
Explain your reasoning.

5. Would you choose Job A for 4 hours or Job B for 7 hours?
Explain your reasoning.

6. Would you choose Job A for 6 hours or Job B for 3 hours?
Explain your reasoning.

Lesson 9: Multiplying Decimals



Let's Practice

1. Lian and Zach both solved the problem below. One of them is right and one is not. Who is right? Explain why the other person is wrong.



Lian

$$\begin{array}{r} \overset{3}{3} \overset{3}{} \\ 3.45 \\ \times \quad 7 \\ \hline 2.415 \end{array}$$

Zach

$$\begin{array}{r} \overset{3}{3} \overset{3}{} \\ 3.45 \\ \times \quad 7 \\ \hline 24.15 \end{array}$$



2. Explain a method to place a decimal point in a multiplication problem.

For 3 – 6: Place the decimal point in the following products.

3. $\$5.67 \times 8 = \$4 \ 5 \ 3 \ 6$

4. $9 \times 14.3 \text{ cm} = 1 \ 2 \ 8 \ 7 \text{ cm}$

5. $7 \times 0.18 = 1 \ 2 \ 6$

6. $7.89 \times 4 = 3 \ 1 \ 5 \ 6$

For 7 – 12: Multiply.

7. 4.56×5

8. 6×0.853

9. 5.67×8

10. 3×9.18

11. 9×8.87

12. 6.74×7

For 13 – 16: Find the product.

13. 8.16×4

14. 3×7.45

15. 23.7×6

16. 2×0.874

Lesson 9: Multiplying Decimals

17. Alyssa has a babysitting job that pays \$5.65 per hour. She worked for 2.3 hours on Monday and 5.7 hours on Saturday. How much did she earn?
18. Lian and her dad are building a tree house in her backyard. They buy 2.5 pieces of lumber at a cost of \$8 per piece. They also buy 6 door handles for \$15.75 each. What was the total cost for all the items?
19. Reflect: Write your own word problem that includes multiplication of a dollar amount and a whole number, then solve.

Mixed
Review

For 1 – 5: Continue each pattern by finding the next three elements.

1. 1.8, 2.7, 3.6, 4.5, 5.4, _____, _____, _____
2. 3, 13, 23, 33, 43, 53, _____, _____, _____

3. $\frac{8}{5}, \frac{9}{5}, \frac{10}{5}, \frac{11}{5}, \frac{12}{5}, \frac{13}{5},$ _____, _____, _____

4. 84, 79, 74, 69, 64, 59, _____, _____, _____

5. 1, 3, 9, 27, _____, _____, _____

Lesson 10

Dividing Decimals



Let's Explore

Exploration: Modelling Decimal Division

Materials: Base 10 Block Cut-outs from the back of this Unit in your Workbook, Scissors, Pencil

Use Base 10 Block Cut-outs to model each of the following. Sketch your model and describe the method you used to solve the problem.

1. $8.5 \div 5$

2. $1.62 \div 6$

3. $0.72 \div 8$

4. $2.72 \div 4$

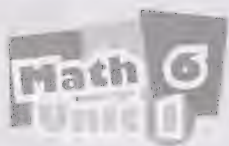
5. $1.19 \div 7$

6. Which method worked best for each problem?
7. Reflect: What is a method you could use to solve $4.2 \div 3$? Create a model of the problem and find the quotient.
8. Use the method you described in number 7 to solve $1.04 \div 4$.

**Let's Practice**

For 1 – 3: Create a model of the problem to find the quotient. Sketch the model and write your solution.

1. $1.02 \div 3$



Lesson 10: Dividing Decimals

2. $2.8 \div 2$

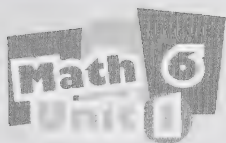
3. $0.32 \div 4$

For 4 – 6: Place the decimal point in the quotient to make the statement true.

4. $3.42 \div 6 = 57$

5. $99.2 \div 8 = 124$

6. $34.4 \div 4 = 86$



Lesson 10: Dividing Decimals

For 7 – 9: Place the decimal point in the dividend to make the statement true.

7. $18 \div 5 = 0.36$

8. $72 \div 6 = 1.2$

9. $296 \div 8 = 0.37$

For 10 – 18: Find the quotient.

10. $10.5 \div 5$

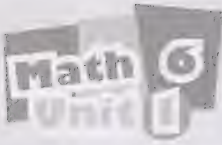
11. $2.45 \div 7$

12. $0.54 \div 6$

13. $11.2 \div 7$

14. $2.16 \div 8$

15. $8.4 \div 6$



Lesson 10: Dividing Decimals

16. $20.8 \div 4$

17. $6.03 \div 9$

18. $1.36 \div 8$

For 19 – 20: Solve the problem.

19. Daksha's older brother runs 23.4 km each week to train for a marathon. He runs 6 days a week. How many kilometres is he running each day, if he always runs the same distance?
20. Lian cut a board that was 85.2 cm long into 4 equal pieces. How long is each piece?
21. Reflect: Describe your favourite method of solving division of decimals problems.

Mixed
Review

For 1 – 5: Solve each equation.

1. $3x = 18$

2. $5n = 35$

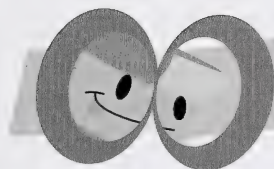
3. $8r = 72$

4. $12q = 36$

5. $4m = 52$

Lesson 11

Multiplication and Division Problem Solving



Let's Explore

Exploration 1: Technology Problems

Materials: Calculator, Pencil

Write an estimate and solve the following. Do not use a calculator unless it is necessary.

1. $6\,789 \times 12.5$

2. $\$475.88 \times 29$

3. $5\,872 \times 15.75$

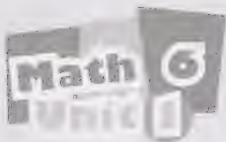
4. 82.4×8

5. $\$29.99 \times 4$

6. 900×10

7. $325 \div 5$

8. $32\,310.6 \div 588$



Lesson 1 1: Multiplication and Division Problem Solving

9. $588 \div 12.25$

10. $1\,311.12 \div 54$

11. $76.8 \div 6$

12. $197.4 \div 3$

13. List the problems you solved by using your calculator.

14. Did any of these problems have a one digit multiplier?

15. Did any of these problems have a one digit divisor?

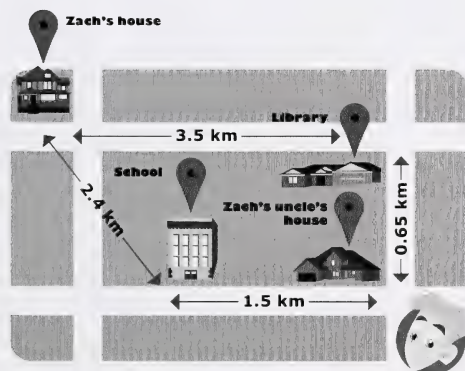
16. If your answer to 14 or 15 was yes, work those problems using paper and pencil.



Let's Practice

1. Nina collected money on each of four days for charity. She collected \$12, \$15.50, \$14.75 and \$13.75. What was the average amount of money she collected each day?
2. Cameron's grandfather keeps bees that produce honey. He has 20 hives that produce about 36.8 kg each month. How much honey is produced in 6 months?

3. Zach walks to school each day. After school he walks to the library, then to his uncle's house, and finally back home. If Zach walks this route each day, Monday through Friday, how far does he walk in one week?



4. Lian has \$50. She needs to buy some school supplies for the new school year. She would like to buy 3 pencils, 8 packs of notebook paper, a backpack, and four pens. How much money will she have left after she makes her purchases? Explain the method you used. If you used a calculator, explain why.

Item	Cost
Backpack	\$25.98
Pen	\$2.45
Pencil	\$0.15
One Pack of Notebook Paper	\$0.85

For 5 – 10: The following people are workers at a health food store. Their hours and their rates of pay are listed in the table:

Worker	Hours per Week	Pay per Hour
Dan	40	\$13.85
Andre	35	\$9.95
Jennifer	24	\$10.25
Abby	20	\$9.95

5. How much did Jennifer make last week?

6. Andre worked more hours last week than he normally would. He made \$388.05 for the week. How many hours did he work?

7. Abby called in sick last week. She worked 8 hours less than she normally would. How much did she make last week?

8. Dan was recently promoted to manager and was given a raise. His pay was \$2.55 less per hour before the raise. He worked the same number of hours before the promotion. How much more does he make now per week than before the promotion?

9. Overtime at the store is 1.5 times the hourly rate of pay. How much will Jennifer make for each hour she works overtime?

10. Who makes more money each week, Jennifer or Andrew?
Explain your answer.

11. Alyssa's mother uses glasses to read. Her glasses magnify the writing to 1.25 times the normal size. If the size of a letter is 6 mm on paper, how large does it appear to be for Alyssa's mom?

12. Frozen yogurt is a popular afternoon treat for some students.
The prices are shown in the table.

Size	Price
Small	\$3.58
Medium	\$4.98
Large	\$5.88

One afternoon, the shop sold 42 small, 28 medium and 14 large orders of frozen yogurt. How much money did they make?

Mixed
Review

For 1 - 4: Solve each equation.

1. $n \div 6 = 5$

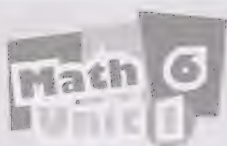
2. $y \div 4 = 12$

3. $m \div 3 = 9$

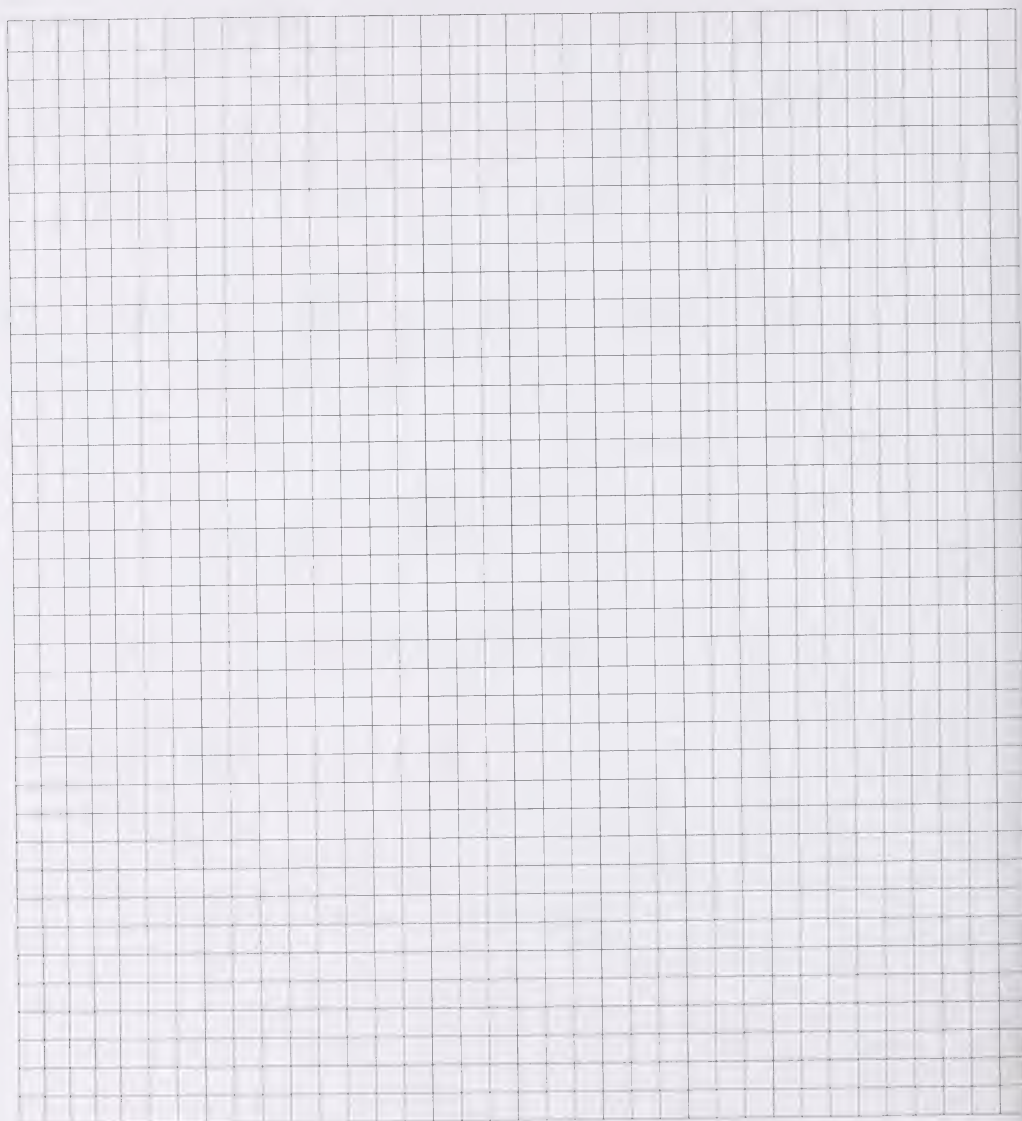
4. $\frac{W}{8} = 10$

5. Write an equation for the sentence.

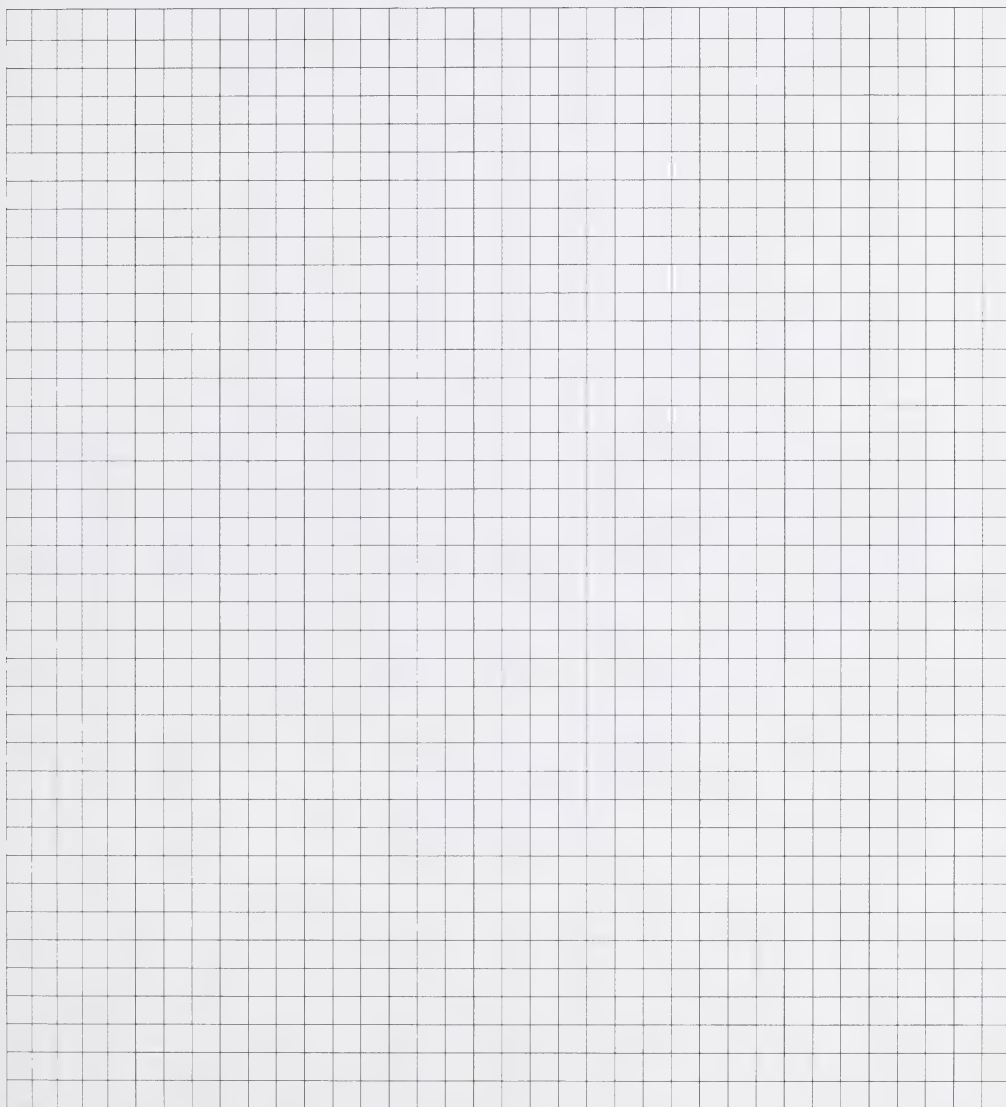
A number divided by three equals eight.



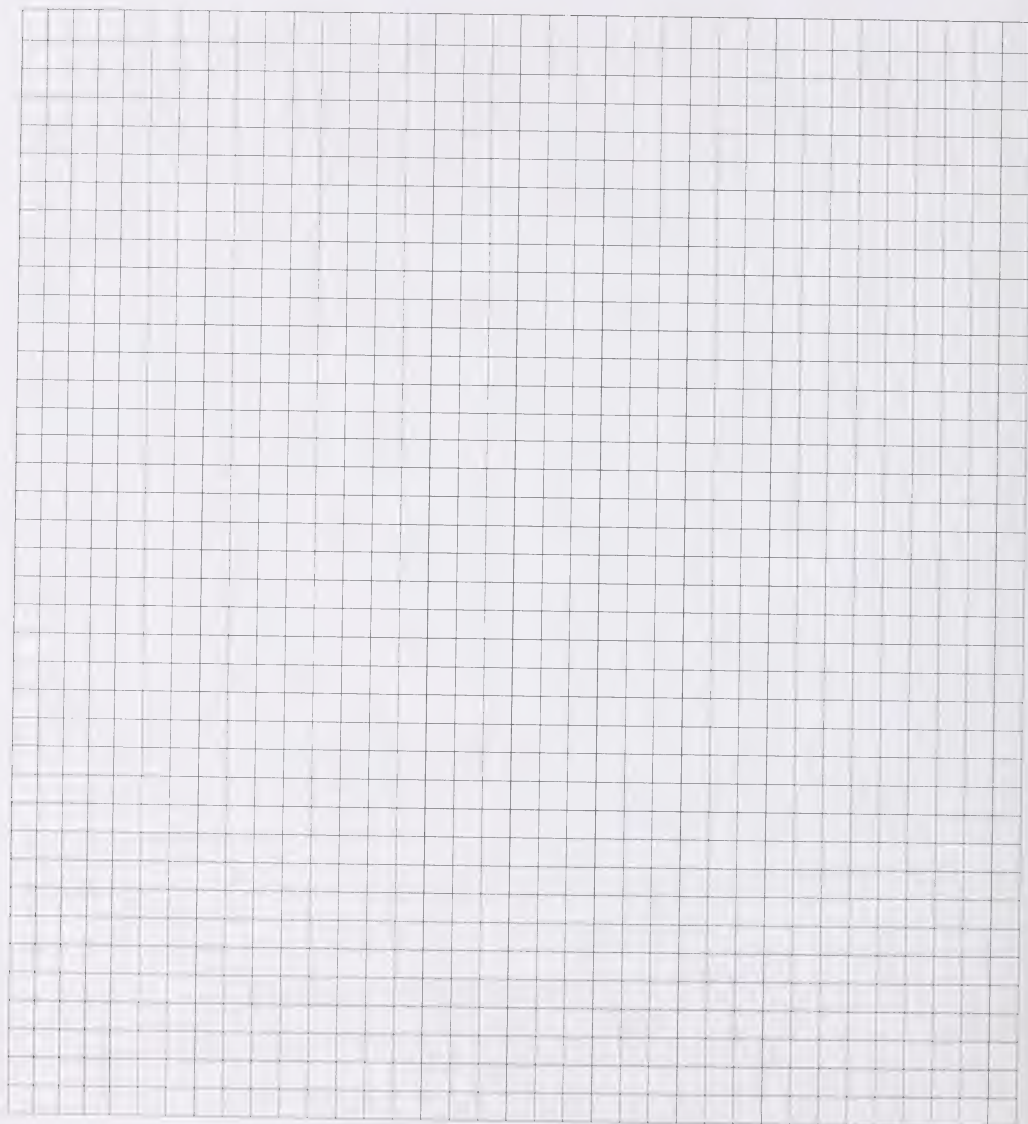
Lesson 1 1: Multiplication and Division Problem Solving



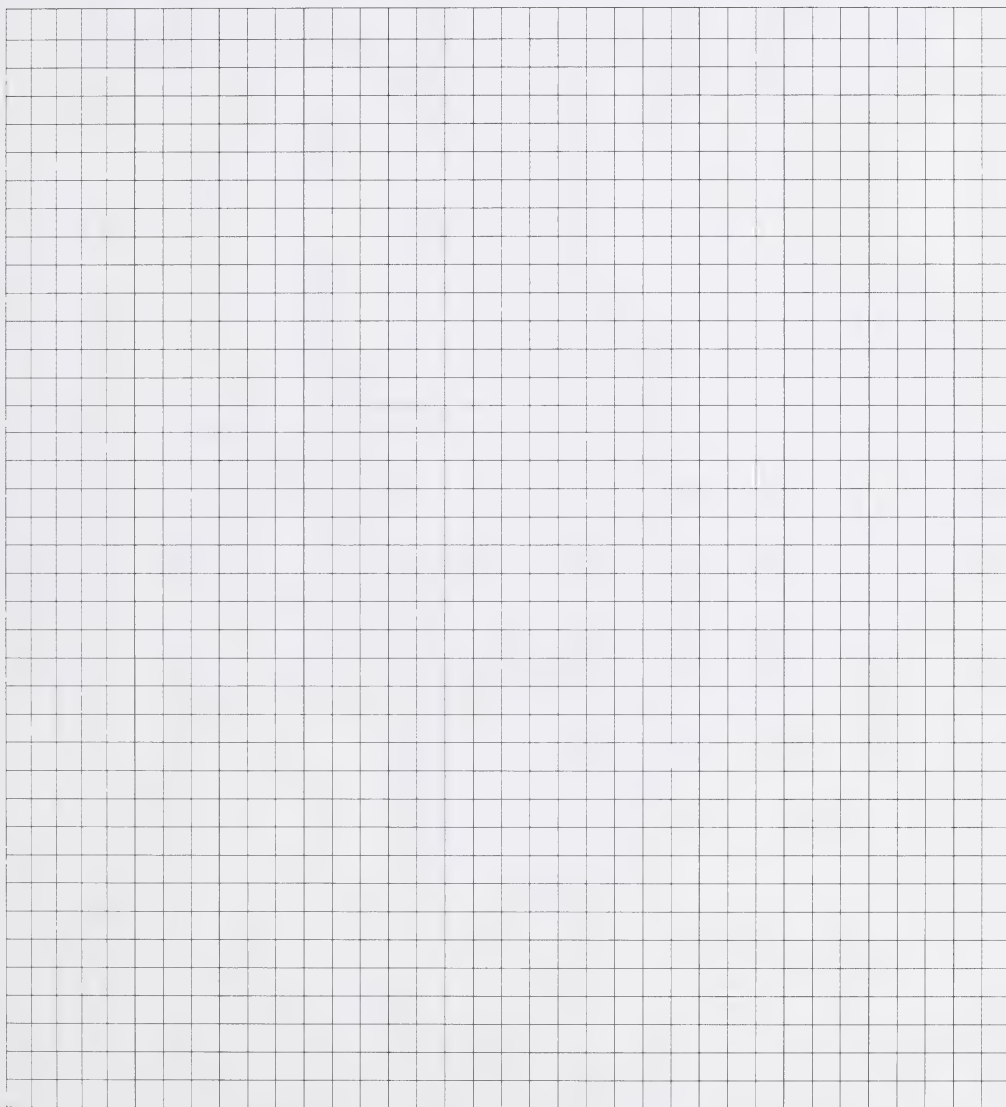
Grid Paper



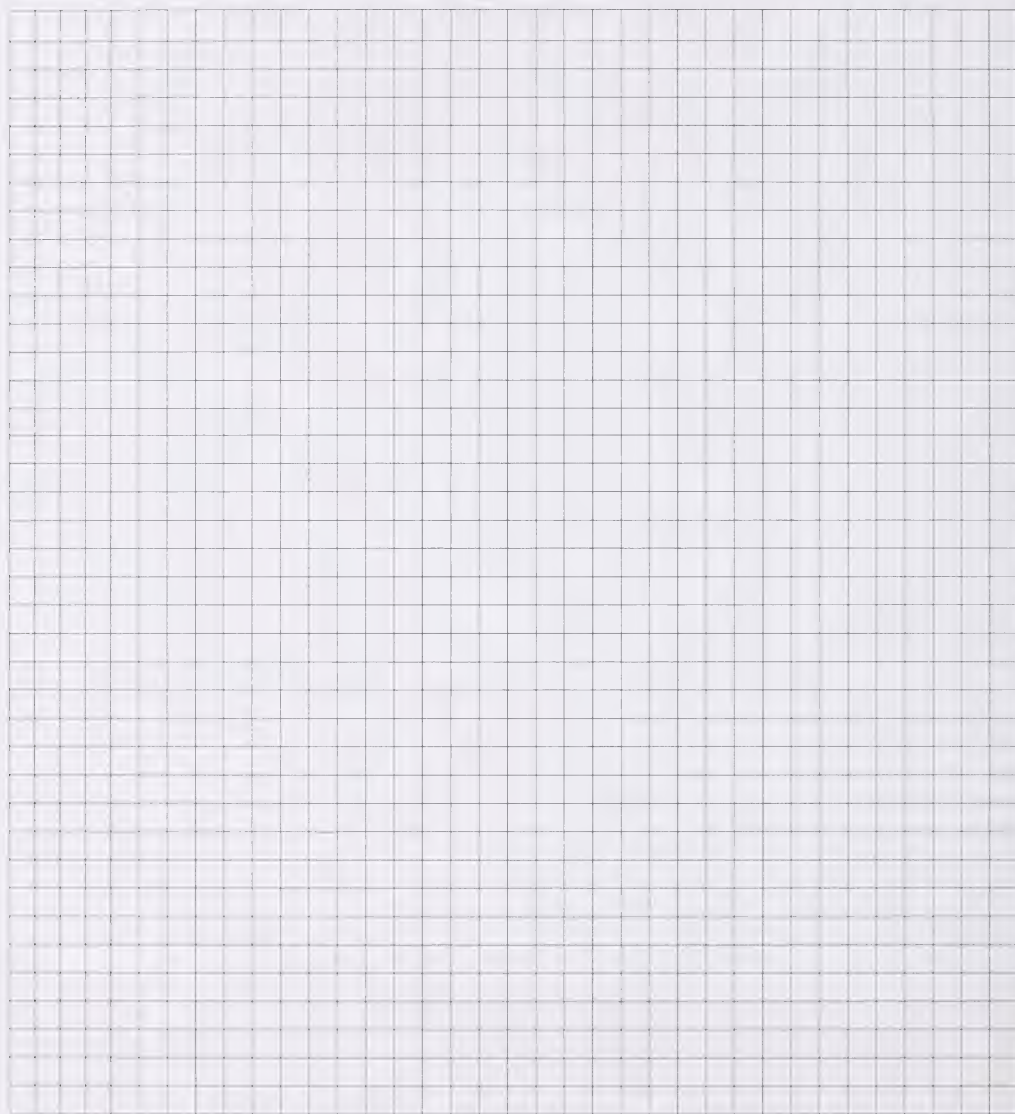
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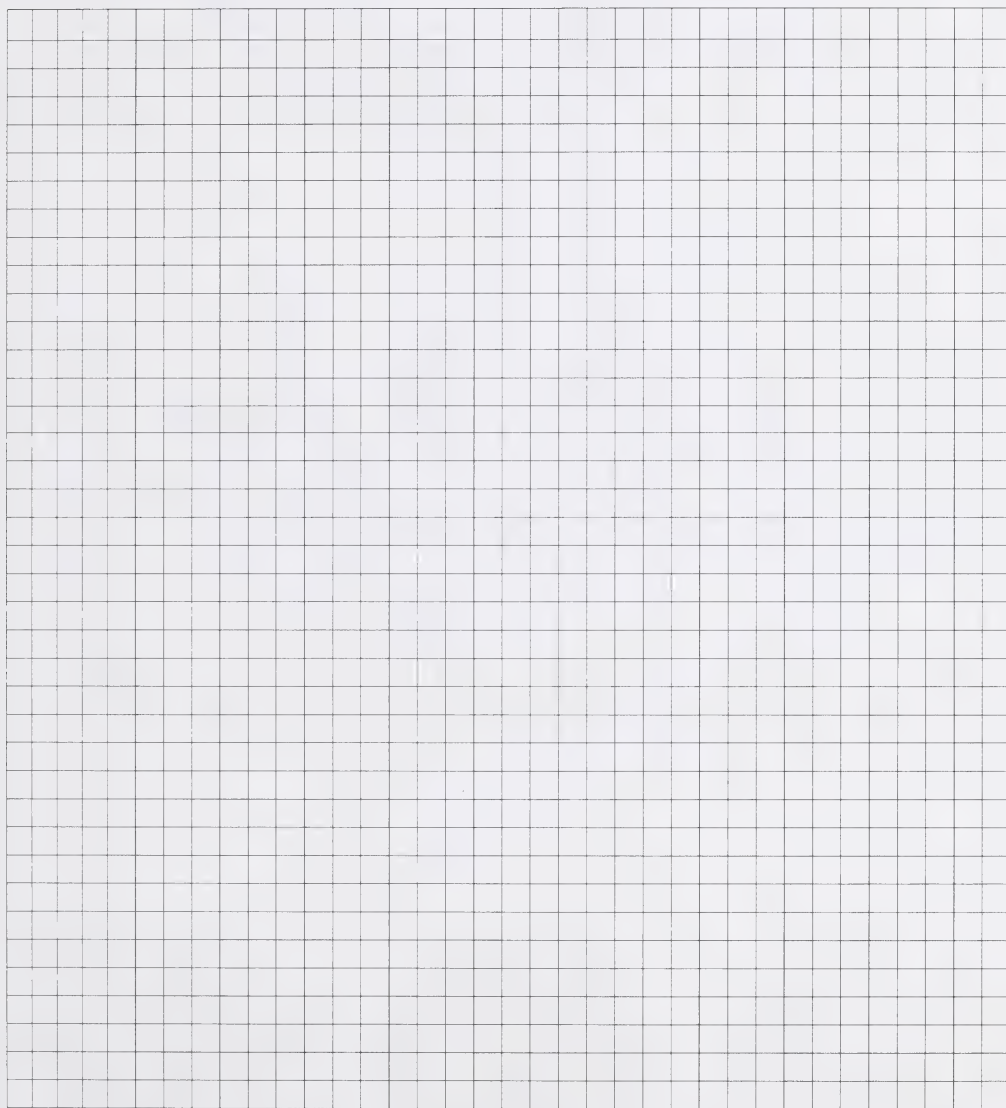
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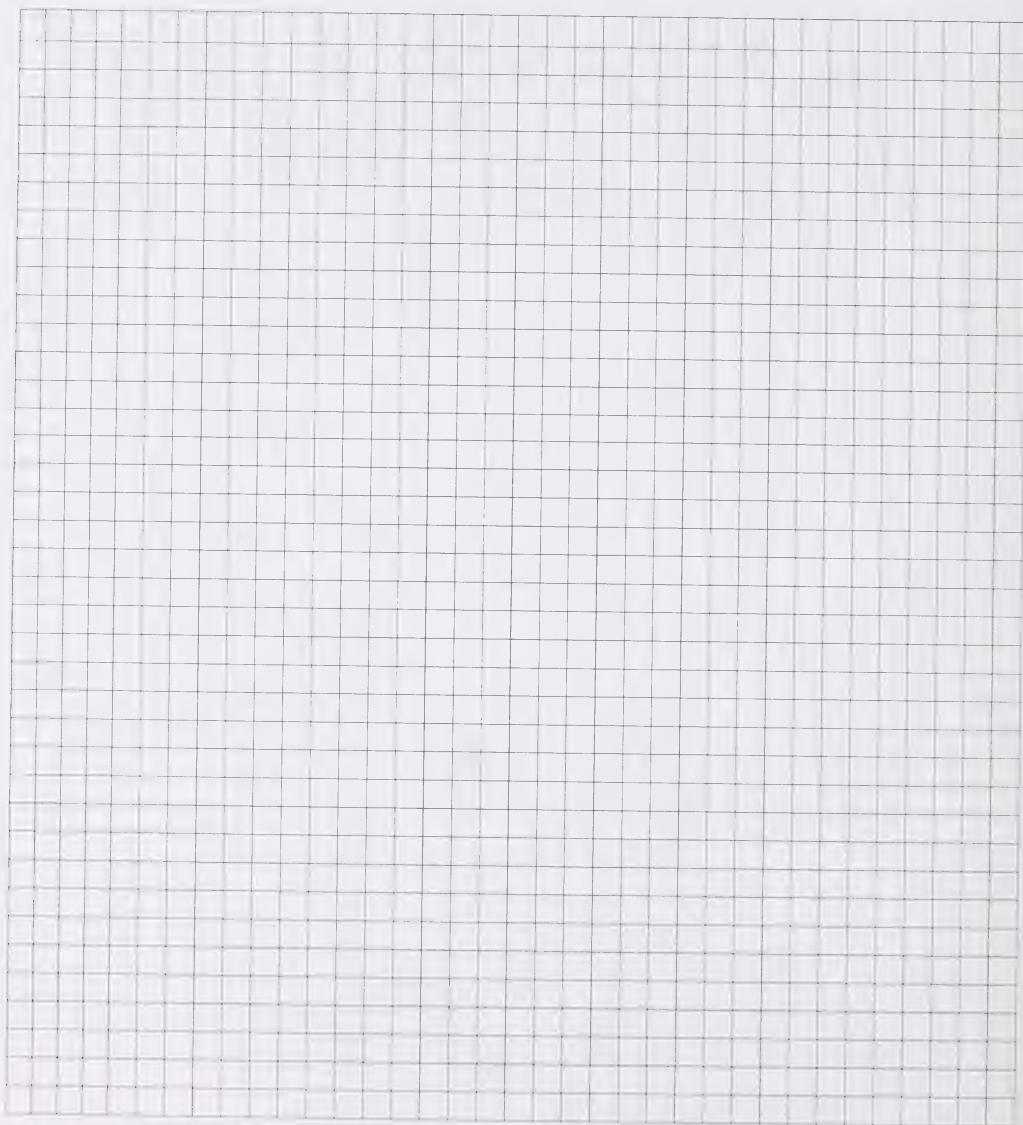
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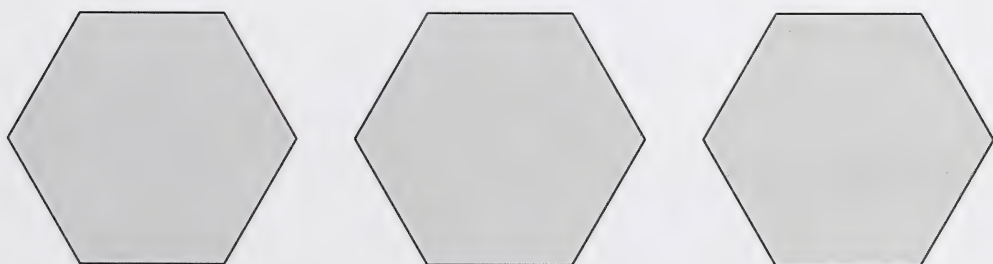
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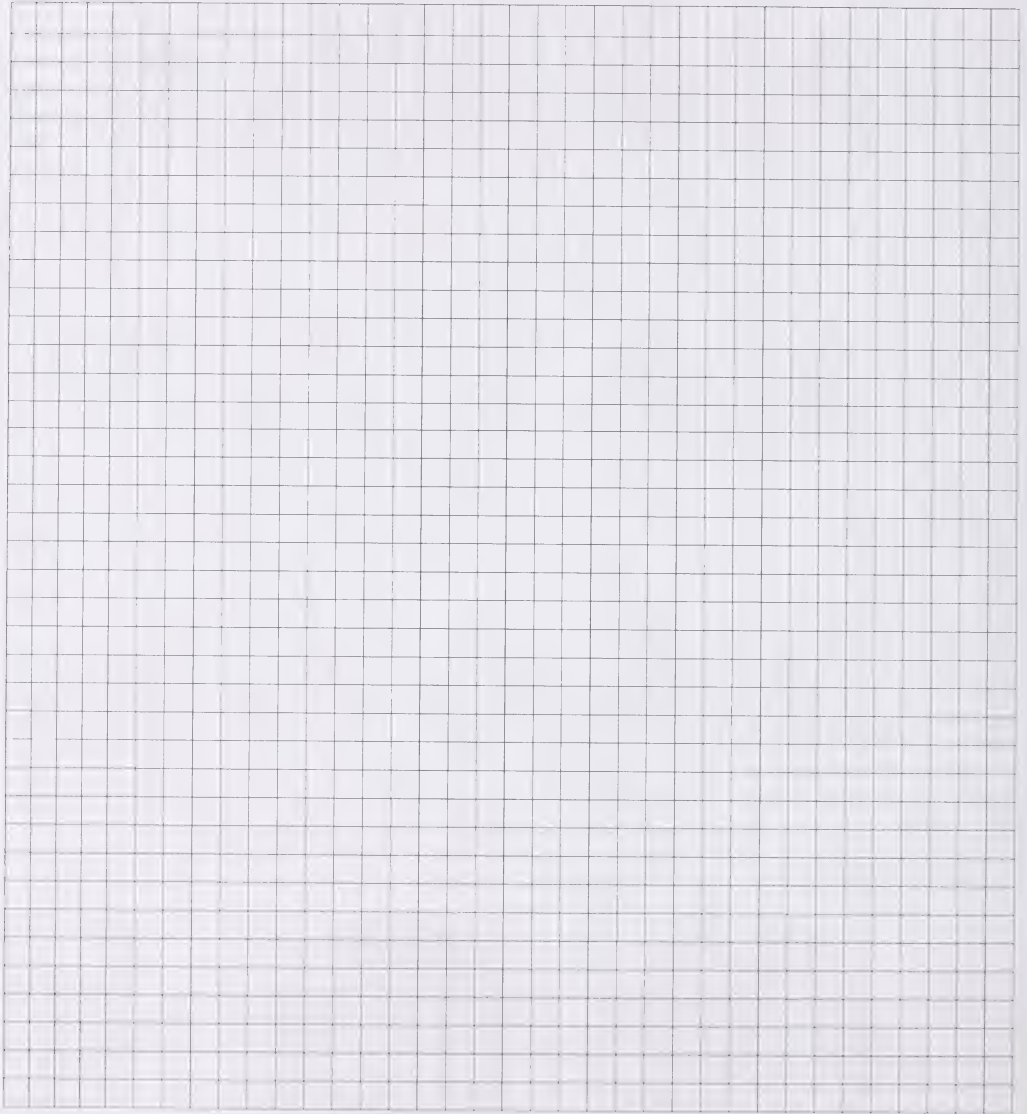


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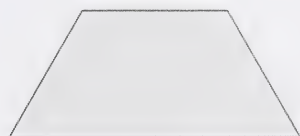
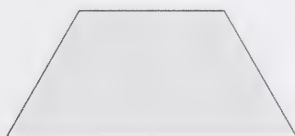
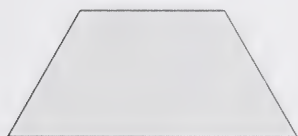
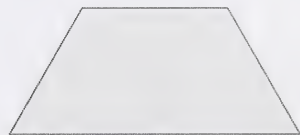
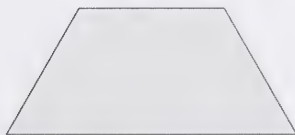
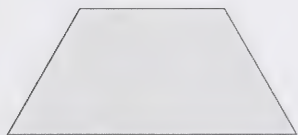
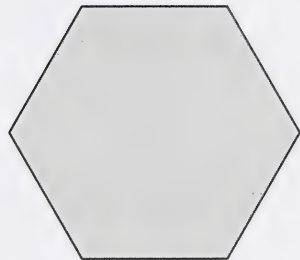
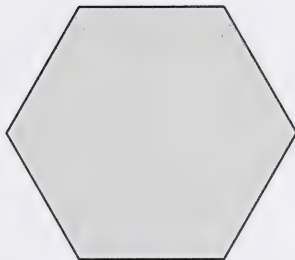
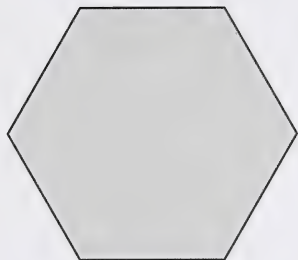


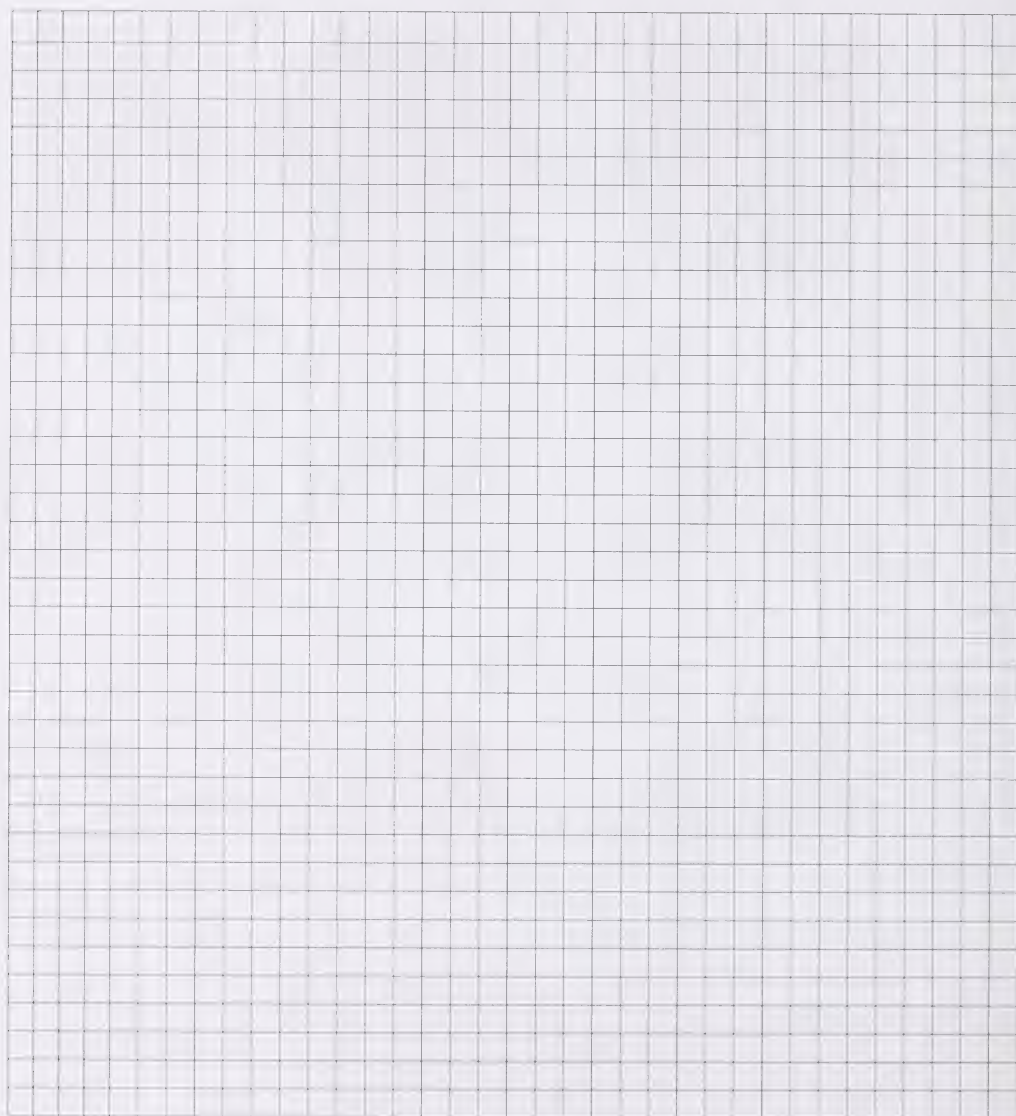
Pattern Blocks



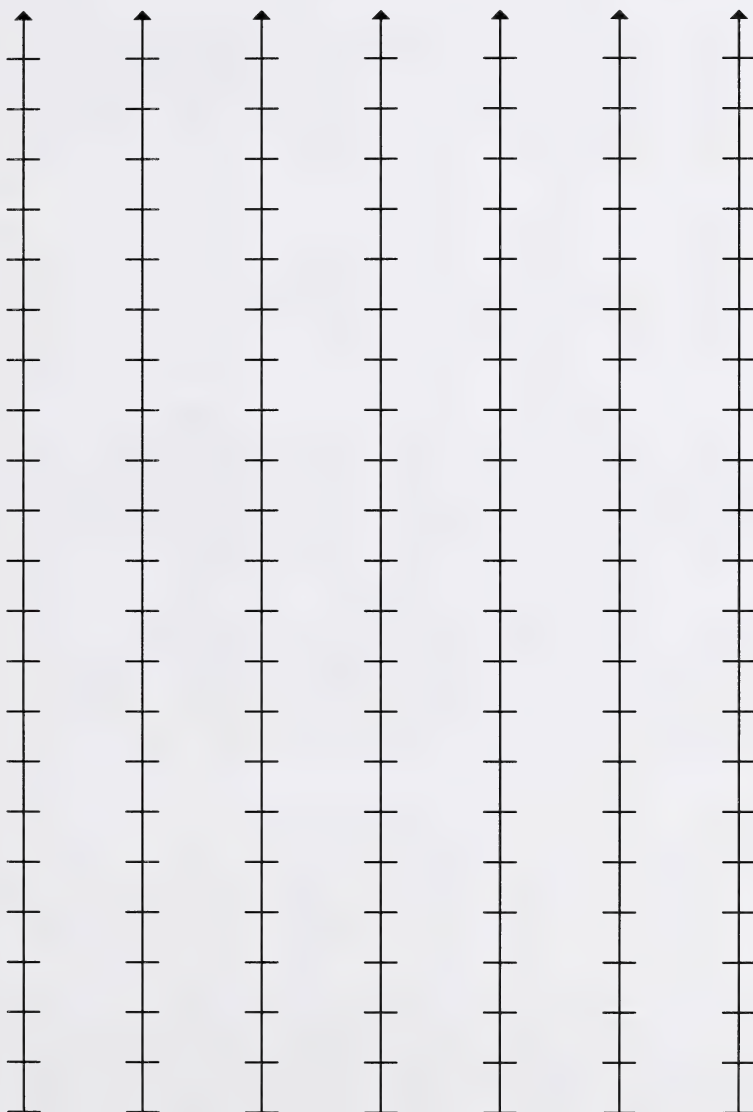


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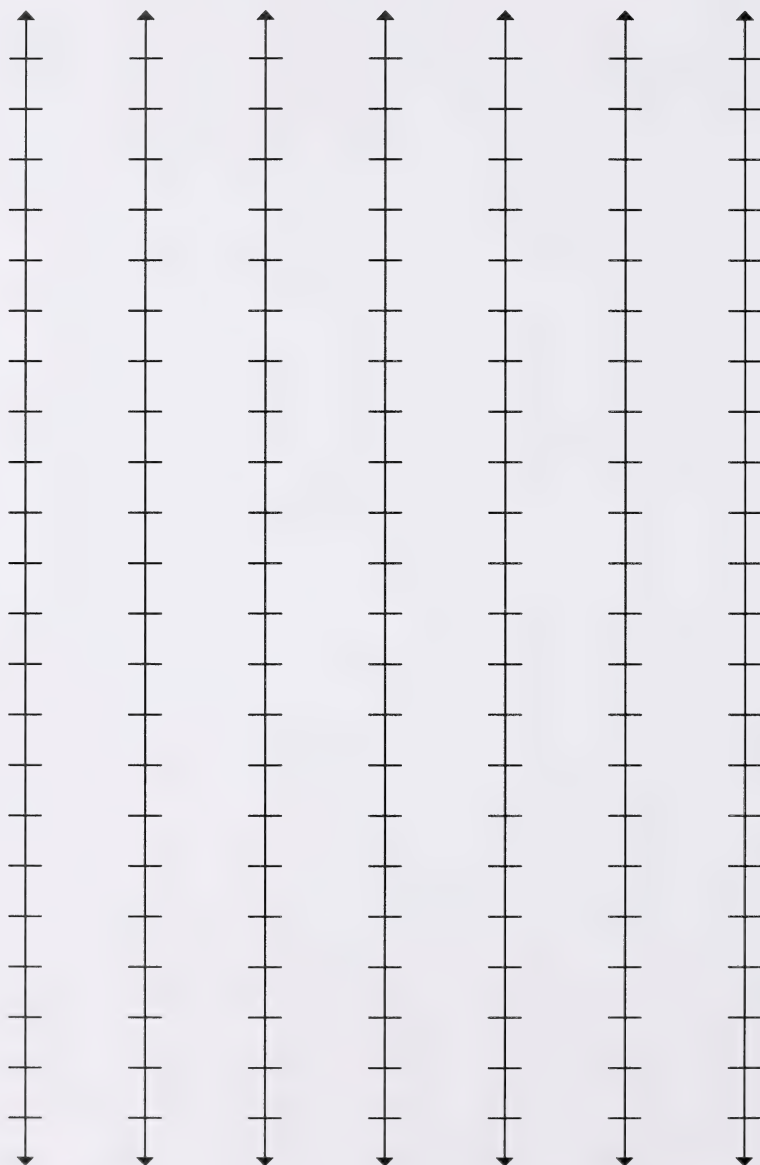




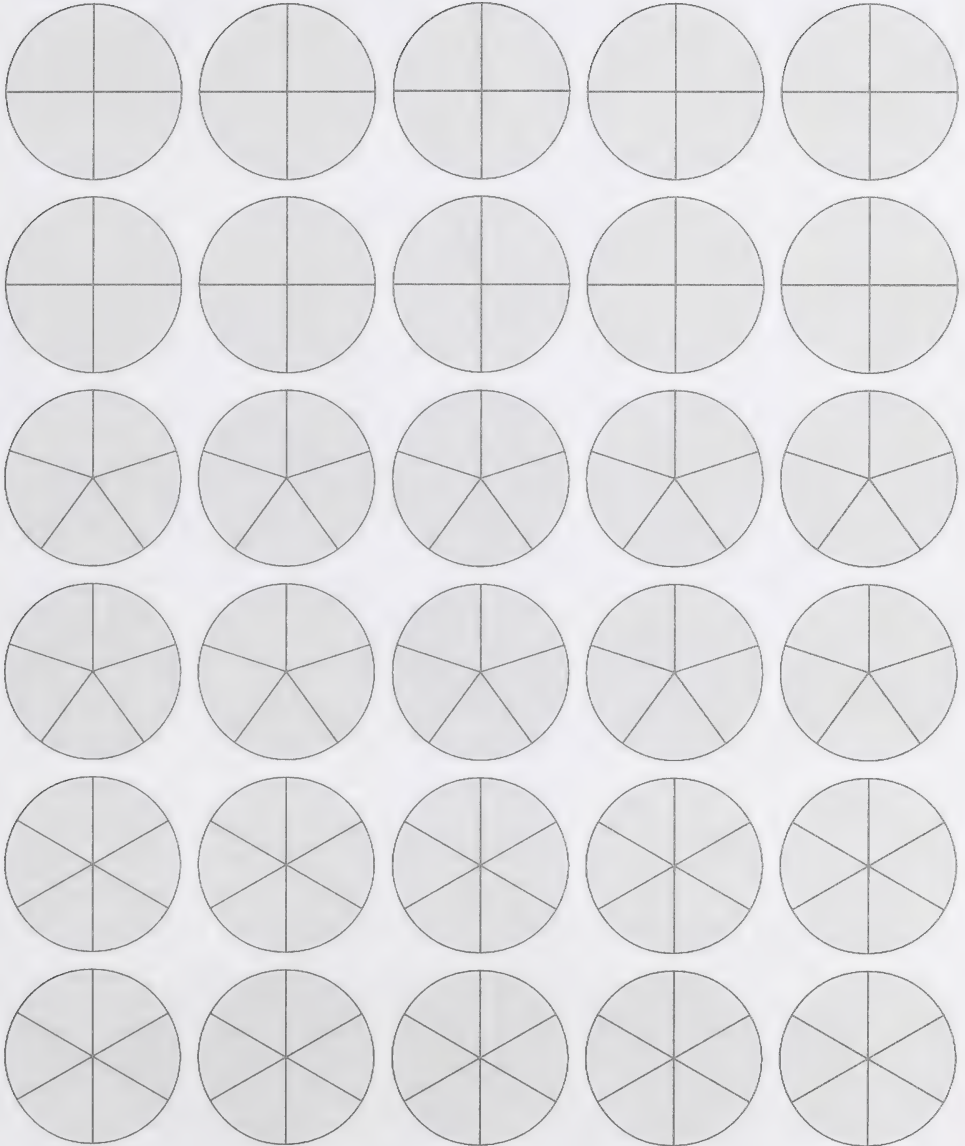
Number Lines

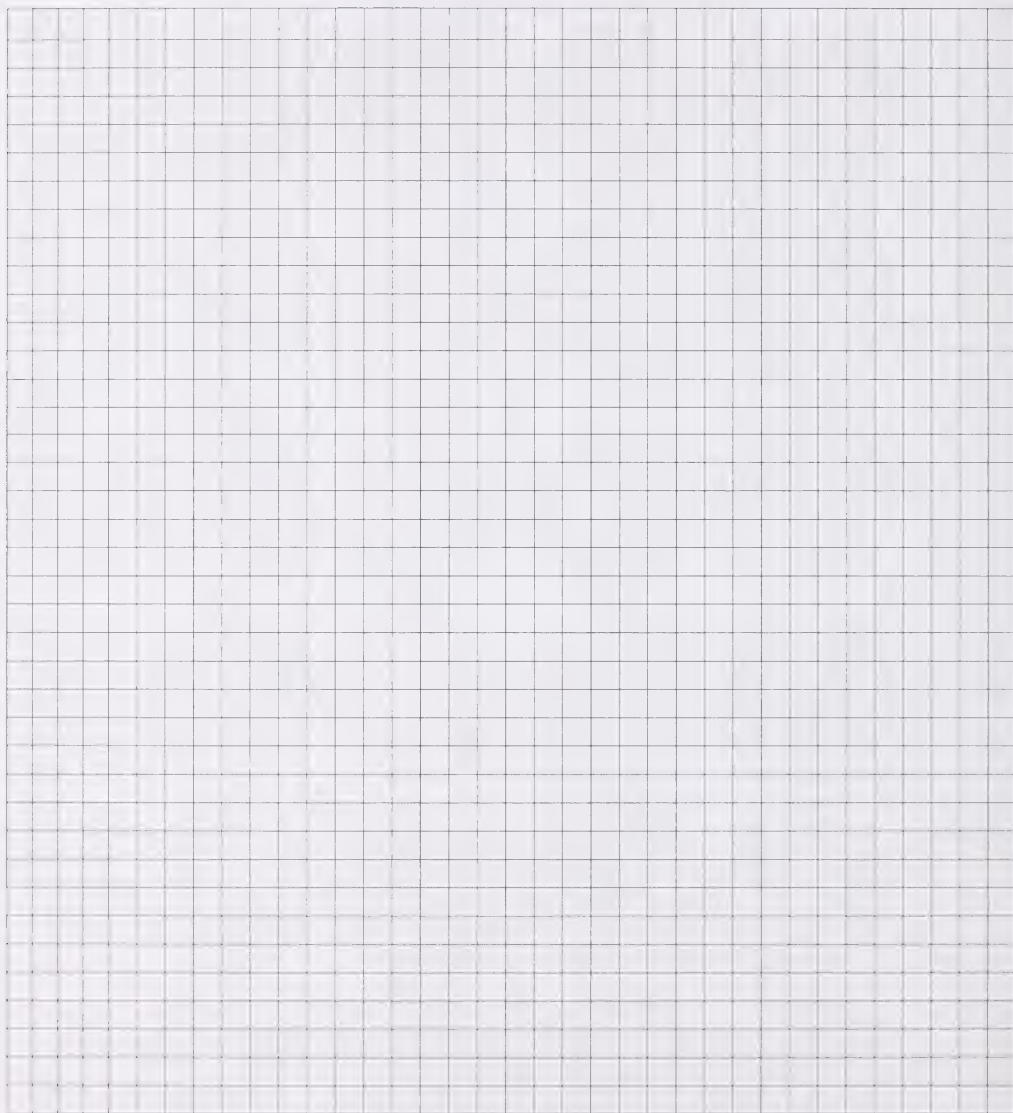


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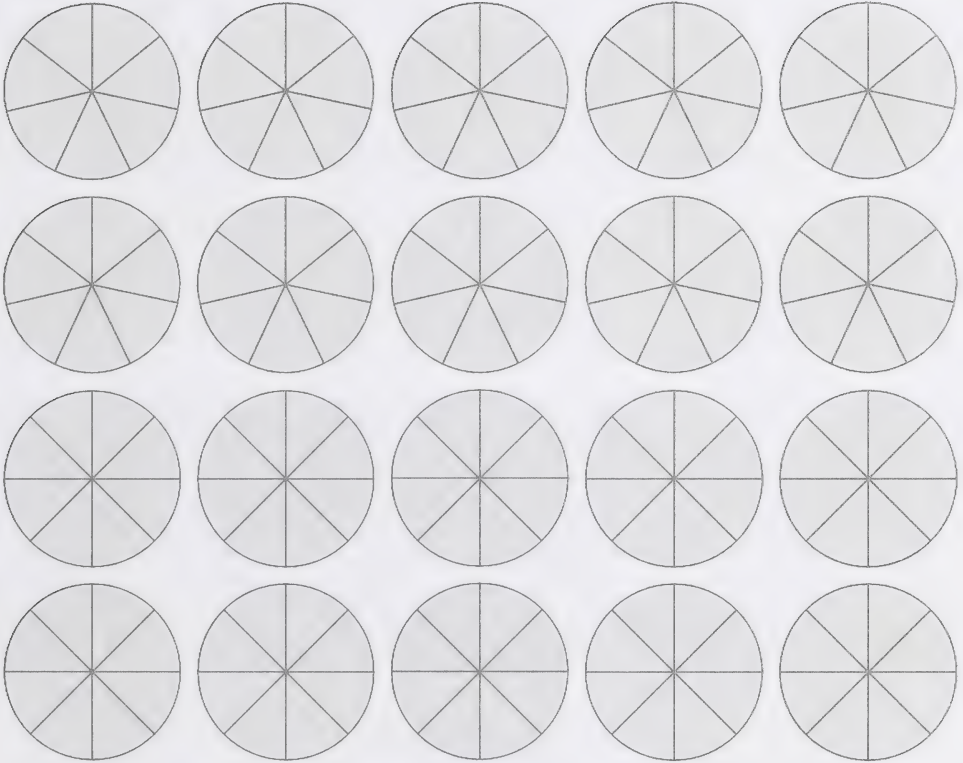


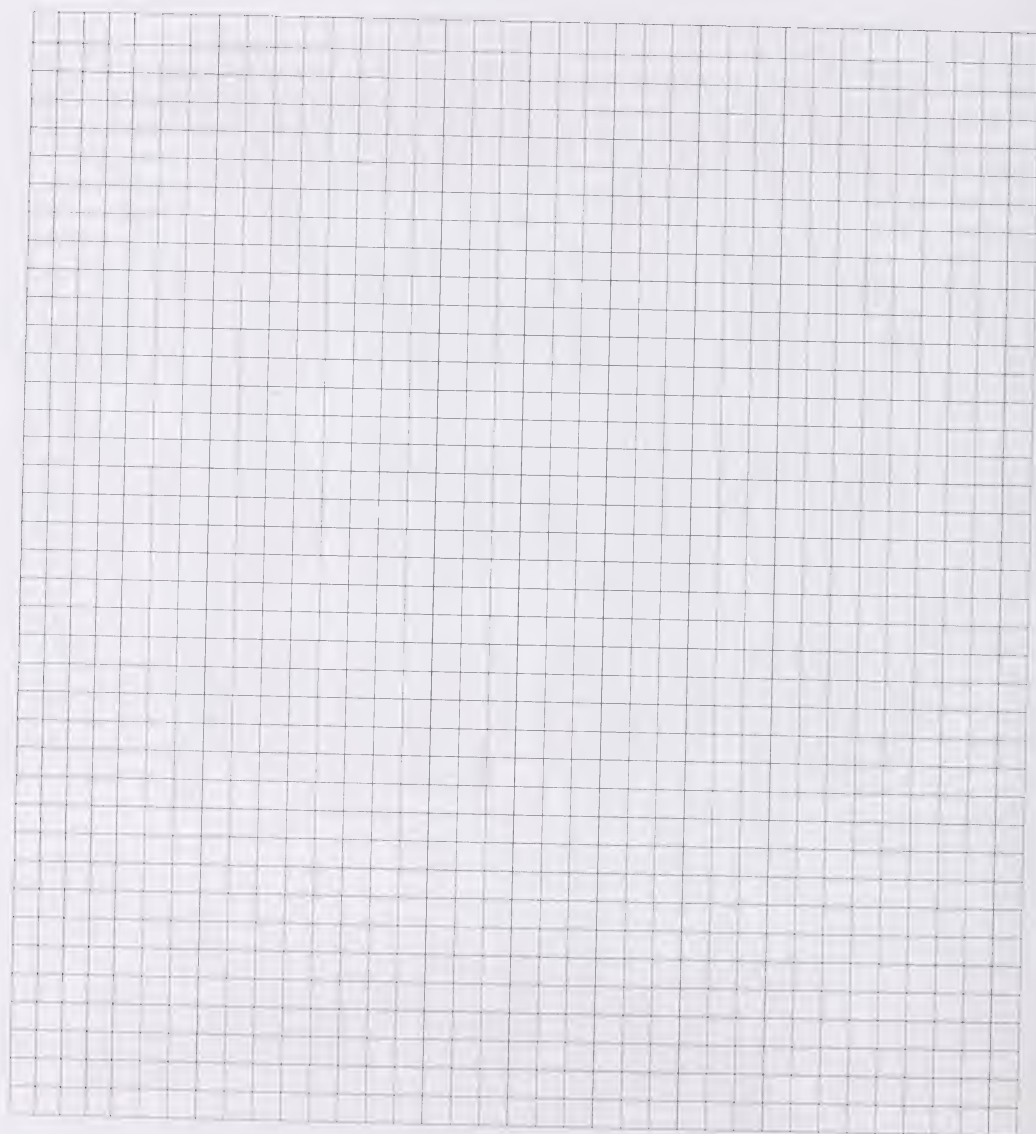
Fraction Circles





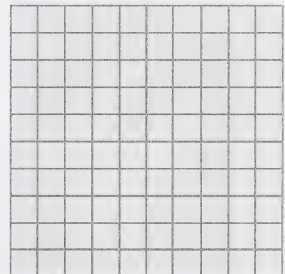
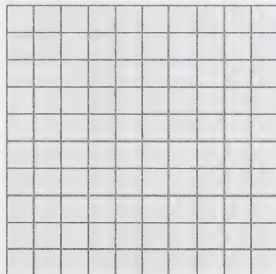
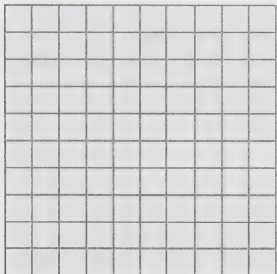
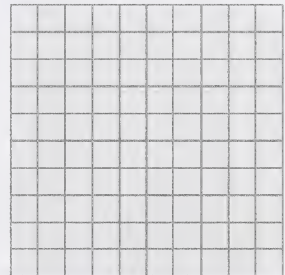
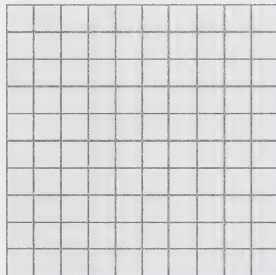
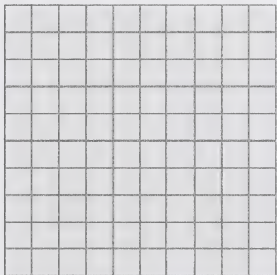
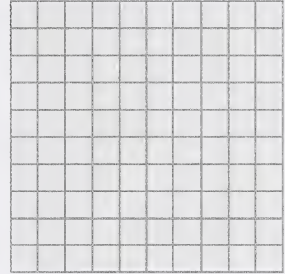
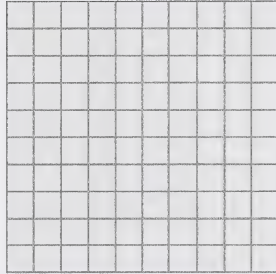
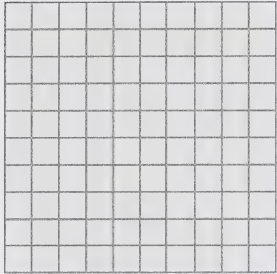
Fraction Circles

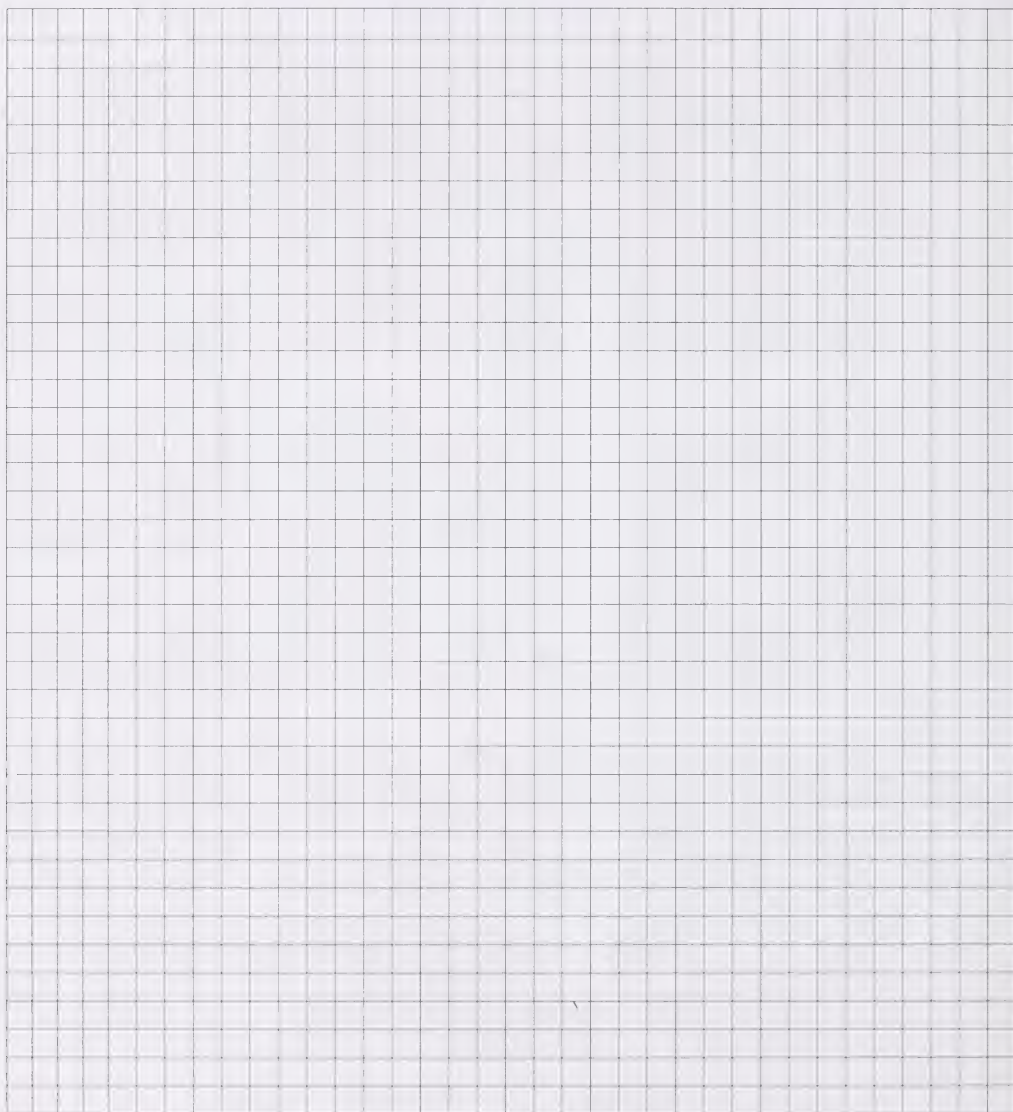




Base 10 Blocks

Flats

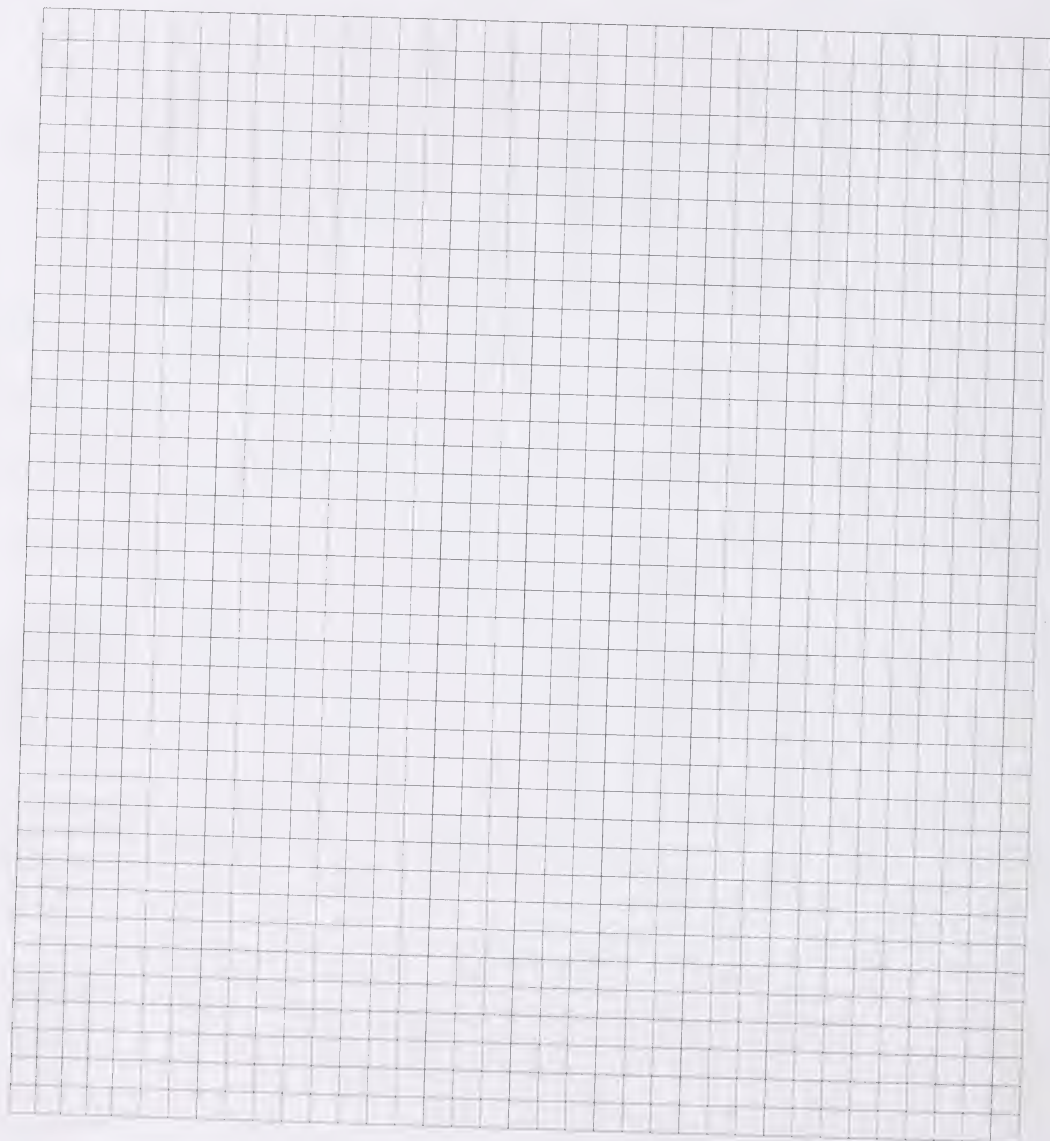




Longs

Units





Sources - Workbook

Lesson 1

Page 1-6: Question 13,

[http://geography.about.com/library/](http://geography.about.com/library/faq/blqzdiameter.htm)

[faq/blqzdiameter.htm](http://geography.about.com/library/faq/blqzdiameter.htm) *Page 1-6:*

Question 14, [http://travel.](http://travel.nationalgeographic.com/places/maps/map_province_alberta.html)

[nationalgeographic.com/places/maps/](http://travel.nationalgeographic.com/places/maps/map_province_alberta.html)

[map_province_alberta.html](http://travel.nationalgeographic.com/places/maps/map_province_alberta.html)

Lesson 2

Page 1-11: Question 3,

[http://www.britannica.com/](http://www.britannica.com/EBchecked/topic/150337/dam)

[EBchecked/topic/150337/dam](http://www.britannica.com/EBchecked/topic/150337/dam)

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